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STREAMBANK TAILINGS AND REVEGETATION STUDIES

STARS Phase III

FINAL REPORT APPENDICES

Volume III

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STREAMBANK TAILINGS AND REVEGETATION STUDIES PHASE III

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APPENDIX B

CHEMISTRY

APPENDIX B1

SOLUBLE METALS IN SOILS

Treatment

TS = Topsoil Wedge
DP = Deep Plow
IN = Injection
AG = Ag-Till
CL = Control
EX = Extra

Plot - Plot Number

Depth in cm
(Note CS within the topsoil)

Sample Type

N = Natural
R = Replicate
CCB = Cross-Contamination Blank
BB = Bottle Blank

Data Qualifiers

U = Undetected at level shown
JD = Estimated value - duplicate results out-of-control
JE = Estimated value - interference
JB = Estimated value - blank contaminated
JS = Estimated value - spike recovery out-of-control

Water soluble metals (ug/kg) in amended materials and soils
collected from STARS field plots.
Spring 1990 data.

Site	Treatment Plot	Depth (cm)	Sample Type	SAS No.	Al	As	Cd	Cu	Fe	Pb	Mn	Zn
21	TS 1	0-24 CS	N	5398H-1	4.3 UJ-D	49.2 J-D	0.77 J-D	55.5 J-D	9.1 J-D	0.21 UJ-DEB	154 J-D	11.6 J-D
21	TS 1	24-34 CS	N	5398H-2	25.3 J-D	12.9 J-D	8.3 J-D	75.6 J-D	36.5 J-DE	2.7 J-DB	6810 J-D	1130 J-D
21	TS 1	0-15	N	5398H-3	773 J-D	142	5.1 J-D	348 J-D	953 J-DE	113 J-D	3020 J-D	369 J-D
21	TS 1	15-60	N	5398H-4	218 J-D	53.9 J-D	377 J-D	3940 J-D	784 J-DE	127 J-D	380000 J-D	117000 J-D
21	TS 1	60-120	N	5398H-5	311 J-D	65.3 J-D	446 J-D	1930 J-D	1020 J-DE	333 J-D	187000 J-D	50200 J-D
21	DP 2	0-15	N	5398H-6	401 J-D	100 J-D	61.0 J-D	622 J-D	1090 J-DE	198 J-D	54500 J-D	6330 J-D
21	DP 2	15-60	N	5398H-7	384 J-D	72.8 J-D	690 J-D	3630 J-D	834 J-DE	609 J-D	111000 J-D	124000 J-D
21	DP 2	60-120	N	5398H-8	80.0 J-D	5.3 J-D	593 J-D	1630 J-D	235 J-DE	232 J-D	135000 J-D	87800 J-D
21	DP 2	120-180	N	5398H-9	122 J-D	34.8 J-D	2.8 J-D	73.7 J-D	215 J-DE	21.4 J-DB	2030 J-D	169 J-D
21	IN 4	0-15	N	5398H-10	177 J-D	459	1.2 J-D	382 J-D	430 J-DE	74.8 J-D	155 J-D	51.9 J-D
21	IN 4	15-60	N	5398H-11	71.1 J-D	95.9 J-D	36.2 J-D	260 J-D	140 J-DE	85.1 J-D	18200 J-D	2260 J-D
21	IN 4	60-120	N	5398H-12	171 J-D	99.3 J-D	1.5 J-D	78.0 J-D	188 J-DE	22.3 J-DB	88.3 J-D	44.2 J-D
21	IN 4	120-180	N	5398H-13	56.7 J-D	50.0 J-D	1.1 J-D	32.5 J-D	77.1 J-DE	7.3 J-DB	226 J-D	18.5 J-D
21	AG 5	0-15	N	5398H-14	567 J-D	194	11.4 J-D	408 J-D	923 J-DE	209 J-D	15200 J-D	796 J-D
21	AG 5	15-60	N	5398H-15	298 J-D	88.4 J-D	54.2 J-D	513 J-D	468 J-DE	159 J-D	57800 J-D	6450 J-D
21	AG 5	60-120	N	5398H-16	237 J-D	108 J-D	1.5 J-D	64.9 J-D	198 J-DE	26.8 J-DE	408 J-D	67.2 J-D
21	CL 6	0-15	N	5398H-17	702 J-D	0.47 UJ-D	742 J-D	19200 J-D	1930 J-DE	372 J-D	334000 J-D	177000 J-D
21	CL 6	15-60	N	5389H-18	472 J-D	56.0 J-D	73.6 J-D	663 J-D	623 J-DE	222 J-D	64700 J-D	11800 J-D
21	CL 6	60-120	N	5389H-19	261 J-D	77.4 J-D	3.7 J-D	132 J-D	214 J-DE	64.6 J-DB	374 J-D	264 J-D
21	CL 6	120-180	N	5398H-20	1130 J-D	68.1 J-D	0.87 UJ-D	72.0 J-D	992 J-DE	32.1 J-DB	1520 J-D	120 J-D
21	DP 7	0-15	N	5398H-21	9.7 U	307	4.6	367	68.1 E J-E	0.49 UJ-EB	5660 J-E	232 J-E
21	DP 7	15-60	N	5398H-22	799	179	21.0	889	1990 J-E	173	20100 J-E	3380 J-E
21	DP 7	60-120	N	5398H-23	367	38.8	10.5	362	494 J-E	50.5 J-D	2640 J-E	1610 J-E
21	DP 7	120-180	N	5398H-24	640	72.5	2.8	154	970 J-E	56.2 J-D	752 J-E	145 J-EB
21	AG 9	0-15	N	5398H-25	302	373	4.7	451	648 J-E	71.1	6550 J-E	326 J-E
21	AG 9	0-15	R	5398H-26	64.5	330	3.4	298	137 J-E	10.0 J-DB	4950 J-E	226 J-E
21	AG 9	15-60	N	5398H-27	104	145	1.7	158	159 J-E	15.1 J-D	2070 J-E	163 J-E
21	AG 9	15-60	R	5398H-28	14.6	51.2	39.8	138	60.1 J-E	69.0	28800 J-E	4720 J-E
21	AG 9	60-120	N	5398H-29	58.3	111	1.1 U	30.0	60.4 J-E	2.6 J-EBD	54.1 J-BE	32.2 J-Eb
21	AG 9	60-120	R	5398H-30	44/6	137	1.0 U	49.7	49.7 J-E	65.1	78.4 J-BE	26.0 J-EB
21	AG 9	-	CCB	5398H-31	20.0 U	3.1	2.0 U	4.0	91.0	4.0	119	54.8
21	AG 9	-	BB	5398H-32	20.0 U	1.0 U	2.0 U	2.0 U	4.0 U	1.0 U	6.3	4.9
21	CL 10	0-15	N	5398H-33	792	67.8	2230	62400	1200 J-E	790 J-D	855000 J-E	456000 J-E
21	C 10	15-60	N	5398H-34	523	61.4	1	18800	1190 J-E	814 J-D	880000 J-E	351000 J-E

Water soluble metals (ug/kg) in amended materials and soils
collected from STARS field plots.
Spring 1990 data.

Site	Treatment Plot	Depth (cm)	Sample Type	SAS No.	Al	As	Cd	Cu	Fe	Pb	Mn	Zn
21	CL 10	60-120	N	5398H-35	74.8	89.8	7.3	71.6	117 J-E	4.1 J-DB	10900 J-E	795 J-E
21	CL 10	120-150	N	5398H-36	57.1	159	1.5 U	70.0	83.6 J-E	7.9 J-DB	161 J-EB	61.5 J-EB
21	IN 11	0-15	N	5398H-37	191	492	1.0U	409	453 J-E	62.6	1770 J-E	66.5 J-EB
21	IN 11	15-60	N	5398H-38	122	41.0	123	77	327 J-E	197	102000 J-E	12000 J-E
21	IN 11	60-120	N	5398H-39	63.3	147	1.1 U	76.4	83.7 J-E	9.7 J-DB	83.3 J-EB	23.7 J-EB
21	IN 11	120-180	N	5398H-40	195	236	1.2U	87.4	233 J-E	10.4 J-DB	78.4 J-EB	16.4 J-EB
21	TS 12	0-23 CS	N	5398H-41	74.8	50.9	1.6	104 J-D	85.3 J-D	2.5 J-DB	1880	91.6 J-D
21	TS 12	24-31 CS	N	5398H-42	116	180	1.4	289 J-D	265 J-D	12.3 J-DB	8860	370 J-D
21	TS 12	0-15	N	5398H-43	176	150	37.5	563 J-D	630 J-D	43.9 J-D	104000	13100 J-D
21	TS 12	15-60	N	5398H-44	258	30.1	715	6010 J-D	713 J-D	531 J-D	437000	135000 J-D
21	TS 12	60-120	N	5398H-45	119	7.1	1.5	75.3 J-D	135 J-D	1.9 J-DB	256	353 J-D
21	TS 13	0-24 CS	N	5398H-46	128	154	0.58 U	87.8 J-D	137 J-D	4.9 J-DB	53.7	18.7 J-D
21	TS 13	25-40 CS	N	5398H-47	103	47.8	0.67	83.9 J-D	125 J-D	16.0 J-D	1070	70.7 J-D
21	TS 13	0-15	N	5398H-48	133	320	1.1 U	376 J-D	302 J-D	20.8 J-D	1210	63.2 J-D
21	TS 13	15-60	N	5398H-49	83.6	133	6.2	199 J-D	173 J-D	18.4 J-D	10000	314 J-D
21	TS 13	60-120	N	5398H-50	119	106	0.91 U	72.5 J-D	148 J-D	19.2 J-D	809	78.6 J-D
21	IN 14	0-15	N	5398H-51	295	654	1.1 U	364 J-D	575 J-D	56.4 J-D	694	68.0 J-D
21	IN 14	15-60	N	5398H-52	111	87.1	104	493 J-D	311 J-D	82.1 J-D	140000	12800 J-D
21	IN 14	60-120	N	5398H-53	151	151	3.5	115 J-D	181 J-D	11.9 J-DB	1340	84.8 J-D
21	IN 14	120-180	N	5398H-54	79.8	393	1.9	149 J-D	124 J-D	2.9 J-DBE	240	27.2 J-D
21	AG 15	0-15	N	5398H-55	132	613	1.3	479 J-D	363 J-D	26.3 J-D	4780	162 J-D
21	AG 15	15-60	N	5398H-56	79.8	64.8	104	500 J-D	242 J-D	96.1 J-D	85700	12800 J-D
21	AG 15	60-120	N	5398H-57	98.1	50.0	1.1 U	12.9 J-D	97.8 J-D	0.84 J-DB	5.8	5.1 J-D
21	DP 17	0-15	N	5398H-58	516	277	10.6	543 J-D	1040 J-D	104 J-D	28900	919 J-D
21	DP 17	15-60	N	5398H-59	136	103	23.3	327 J-D	222 J-D	104 J-D	14800	1580 J-D
21	DP 17	60-120	N	5398H-60	153	75.4	27.3	339 J-D	308 J-D	79.5 J-D	45000	3750 J-D
21	DP 17	120-180	N	5398H-61	78.3	99.0	3.2 J-D	68.8 J-D	105	6.4	2870 J-D	126 J-DBE
21	CL 18	0-15	N	5398H-62	793	53.6	965 J-D	59400 J-D	703	25.1	494000 J-D	320000J-DE
21	CL 18	15-60	N	5398H-63	112	33.3	595 J-D	2910 J-D	654	326 J-D	427000 J-D	114000J-DE
21	CL 18	60-120	N	5398H-64	57.1	8.4	2.0 J-D	27.0 J-D	74.9	1.6	46.4 J-DB	70.9 J-DBE
21	CL 18	120-180	N	5398H-65	78.2	24.1 J-D	8.6 J-D	34.1 J-D	175	10.0	44200 J-D	4050 J-DE
21	TS 19	0-24 CS	N	5398H-66	46.5	72.6	0.56 J-D	140 J-D	50.2	3.3	592 J-D	189 J-DBE
21	TS 19	0-24 CS R	R	5398H-67	53.1	114	1.2 J-D	99.6 J-D	61.4	1.6	153 J-DB	11.0 J-DBE
21	TS 19	25-34 CS	N	5398H-68	43.1	165	0.96 J-D	105 J-D	64.8	5.1	71.6 J-DB	12.5 J-DBE

Water soluble metals (ug/kg) in amended materials and soils
collected from STARS field plots.
Spring 1990 data.

Site	Treatment	Plot	Depth (cm)	Sample Type	SAS No.	Al	As	Cd	Cu	Fe	Pb	Mn	Zn
21	TS	19	25-34 CS R	R	5398H-69	108	81.7	2.0 J-D	171 J-D	149	7.5	1320 J-D	73.6 J-DBE
21	TS	19	0-15	N	5398H-70	71.6	137	7.5 J-D	210 J-D	170	13.4	10700 J-D	371 J-DBE
21	TS	19	0-15	R	5398H-71	271	472	7.3 J-D	864 J-D	571	56.5 J-D	10000 J-D	419 J-DBE
21	TS	19	15-60	N	5398H-72	44.0	368	7.8 J-D	626 J-D	164	7.9	15700 J-D	394 J-DBE
21	TS	19	15-60	R	5398H-73	234	84.2	379 J-D	3270 J-D	923	242 J-D	294000 J-D	86100 J-DE
21	TS	19	60-120	N	5398H-74	73.4	42.1	69.3 J-D	308 J-D	220	73.8 J-D	76000 J-D	8770 J-DE
21	TS	19	60-120	R	5398H-75	72.0	101.3	3.2 J-D	55.7 J-D	96.6	8.2	1280 J-D	58.6 J-DBE
21	TS	19	-	BB	5398H-76	20.0 U	1.0 U	2.0 U	2.0 U	12.5	1.3	25.1	4.7
21	TS	19	-	CCB	5398H-77	20.0 U	1.0 U	2.0 U	21.2	68.0	2.1	214.0	195.6
21	CL	20	0-15	N	5398H-78	245	35.4 J-E	1230 J-D	17500 J-D	914	307 J-D	661000 J-D	328000J-DE
21	CL	20	15-60	N	5398H-79	172	32.6	707 J-D	6850 J-D	664	430 J-D	391000 J-D	146000J-DE
21	CL	20	60-120	N	5398H-80	45.7	72.2	3.2 J-D	51.1 J-D	69.1	1.4	1240 J-D	260 J-DBE
21	CL	20	120-180	N	5398H-81	53.0 J-D	53.6 J-D	8.0 J-D	67.8	104 J-E	4.6 J-D	5150	379
21	DP	21	0-15	N	5398H-82	443 J-D	367	3.3 J-D	573	1000 J E	132 J D	7850	326
21	DP	21	15-60	N	5398H-83	183 J-D	65.9 J-D	179 J-D	729	492 J-E	140 J-D	194000	25800
21	DP	21	60-120	N	5398H-84	1890 J-D	57.2 J-D	32.9 J-D	601	2140 J-E	279 J-D	38200	7100
21	DP	21	120-180	N	5398H-85	52.6 J-D	135 J-D	1.8 J-D	94.9	87.4 J-E	0.80 J-D	961	293
21	AG	23	0-15	N	5398H-86	78.0 JD	1370	1.0 UJ-D	884	412 J-E	53.3 J-E	2830	73.5
21	AG	23	15-60	N	5398H-87	232 J-D	47.9 J-D	850 J-D	16900	720 J-E	1030 J-D	418000	130000
21	AG	23	60-120	N	5398H-88	114 J-D	10.6 J-D	19.1 J-D	115	132 J-E	15. 6 J-D	8560	2730
21	IN	24	0-15	N	5398H-89	61.2 J-D	871	0.98 UJ-D	329	157 J-E	7/7 J-D	775	41.0
21	IN	24	15-60	N	5398H-90	152 J-D	81.7 J-D	83.7 J-D	1110	785 J-E	161 J-D	102000	17300
21	IN	24	60-120	N	5398H-91	101 J-D	13.0 J-D	94.2 J-D	378	163 J-E	105 J-D	31900	7270
21	IN	24	120-180	N	5398H-92	81.4 J-D	15.5 J-D	24.8 J-D	190	123 J-E	8.2 J-D	21800	2430
27	EX	1	0-15	N	5398H-93	333	2260	7.2	1340	751	12.0	79.3	46.7 J-D
27	EX	1	15-60	N	5398H-94	89.1	28.5	0.92 U	33.1	93.6	1.1	78.0	9.8 J-D
27	CL	2	0-15	N	5398H-95	1380	548	85.1	699	245	87.9	7830	23500 J-D
27	CL	2	15-60	N	5398H-96	73.9	44.6	1.6	49.8	89.2	5.6	204	309 J-D
27	AG	4	0-15	N	5398H-97	76.2	973	17.7	3740	1180	10.9	26.3	218 J-D
27	AG	4	15-60	N	5398H-98	130	37.2 J-E	0.93 U	23.2	140	1.8	193	75.4 J-D
27	DP	5	0-15	N	5398H-99	9.7 U	168	2.4	482	131	0.49 U	0.79	38.3 J-D
27	DP	5	15-60	N	5398H-100	8.5	21.4	2.1	128	30.6	0.36U	509	115 J-D
27	DP	5	60-90	N	5398H-101	44000	103	17.8	866	38200	209	2040	1180 J-D
27	AG	7	0-15	N	5398H-102	548	1220	8	2040	1060	71.5	265	164 J-D

Water soluble metals (ug/kg) in amended materials and soils
collected from STARS field plots.
Spring 1990 data.

Site	Treatment Plot	Depth (cm)	Sample Type	SAS No.	Al	As	Cd	Cu	Fe	Pb	Mn	Zn
27 AG	7	15-60	N	5398H-103	182	287	4.2	352	220	5.7	745	203 J-D
27 AG	7	60-90	N	5398H-104	977	131	2.9 U	69.1	942	4.7	175	149 J-D
27 EX	9	0-15	N	5398H-105	1110	786	8.4	3300	696	162	672	1070 J-D
27 EX	9	15-60	N	5398H-106	105	37.8	5.9	238	104	3.4	587	987 J-D
27 CL	10	0-15	N	5398H-107	4090	246	332	2580	1280	251	32300	44400 J-D
27 CL	10	15-60	N	5398H-108	576	4.9	5.3	30.5	120	0.53	1090	5240 J-D
27 DP	11	15-60	N	5398H-109	201	10.1	42.1	303	127	15.8	8990	8830 J-D
27 DP	11	60-90	N	5389H-110	523	3.0	18.0	92.1	97.0	3.3	1480	4260 J-D
27 EX	13	0-15	N	5398H-111	515	2730	8.7	3740	1060	123	455	327 J-D
27 EX	13	0-15	R	5389H-112	53.7	1530	1.7	2640	250	28.4	421	163 J-D
27 EX	13	15-60	N	5398H-113	225 J-D	18.3 J-D	0.86 U	12.8 J-D	189 J-EB	0.56 J-B	84.1 J-DB	162 J-DB
27 EX	13	15-60	R	5398H-114	401 J-D	42.8 J-D	1.4	12.9 J-E	352 J-EB	0.84 J-B	490 J-D	530 J-DB
27 EX	13	-	CCB	5398H-115	78.5	1.8	2.0 U	16.6	617	4.8	62.6	126
27 EX	13	-	BB	5398H-116	20.0 U	1.0 U	2.0 U	6.1	17.8	1.0	1.0 U	17.7
27 CL	14	0-15	N	5398H-117	326 J-D	144 J-D	84.5	770 J-E	306 J-EB	71.5	9070 J-D	11400 J-D
27 CL	14	15-60	N	5398H-118	372 J-D	9.2 J-D	2.0	3.1 J-E	192 J-EB	0.78 J-B	690 J-D	6910 J-D
27 CL	14	60-90	N	5398H-119	372 J-D	20.6 J-D	2.4	33.3 J-E	248 J-EB	2.8 J-B	467 J-D	219 J-DB
27 DP	16	15-60	N	5398H-120	152 J-D	13.2 J-D	18.9	137 J-E	142 J-EB	2.5 J-B	1370 J-D	3670 J-D
27 DP	16	60-120	N	5398H-121	119 J-D	10.9 J-D	5.3	104 J-E	140 J-EB	1.3 J-B	585 J-D	262 J-DB
27 AG	17	0-15	N	5398H-122	192 J-D	199	3.5	1650 J-E	321 J-EB	136 J-D	193 J-D	141 J-DB
27 AG	17	15-60	N	5398H-123	78.6 J-D	8.2 J-D	3.5	70.7 J-E	96.6 J-EB	3.5 J-B	167 J-D	692 J-DB
27 AG	19	0-15	N	5398H-124	227 J-D	321	6.0	2040 J-E	348 J-EB	70.8 J-D	1210 J-D	178 J-DB
27 AG	19	15-60	N	5398H-125	485 J-D	6.7 J-D	30.1	152 J-E	108 J-EB	0.99 J-B	3830 J-D	7830 J-D
27 AG	19	60-90	N	5398H-126	280 J-D	56.8 J-D	1.3 U	33.0 J-E	306 J-EB	1.2 J-B	155 J-DB	62.3 J-DB
27 EX	20	0-15	N	5398H-127	339 J-D	538	12.1	2620 J-E	472 J-EB	112 J-D	3190 J-D	446 J-DB
27 EX	20	15-60	N	5398H-128	482 J-D	5.9 J-D	5.1	26.4 J-E	178 J-EB	0.92 J-B	1610 J-D	3360 J-D
27 EX	20	60-90	N	5398H-129	1240 J-D	24.0 J-D	116	5270 J-E	113 J-EB	261 J-D	12300 J-D	19600 J-D
27 CL	21	0-15	N	5398H-130	611 J-D	20.3 J-D	1.9	15.8 J-E	439 J-EB	1.4 J-B	157 J-DB	267 J-DB
27 CL	21	0-15	R	5398H-131	3040 J-D	57.8 J-D	181	3710 J-E	296 J-EB	208 J-D	23100 J-D	35300 J-D
27 CL	21	15-60	N	5398H-132	348 J-D	5.9 J-D	12.9	100 J-E	135 J-EB	1.8 J-B	828 J-D	3540 J-D
27 CL	21	15-60	R	5398H-133	435 J-D	5.1 J-D	2.7	26.1 J-E	81.3 J-EB	1.2 J-B	477 J-D	1600 J-D
27 CL	21	-	BB	5398H-134	24.1	1.0 U	2.0 U	2.6	16.8	1.0 U	1.0 U	9.9
27 CL	21	-	CCB	5398H-135	44.0	1.3	2.0 U	13.5	238	5.2	50.4	464
27 DP	22	0-15	N	5398H-136	631 J-D	263	6.1	703 J-E	796 J-EB	29.6	286 J-D	144 J-DB

Water soluble metals (ug/kg) in amended materials and soils
collected from STARS field plots.
Spring 1990 data.

Site	Treatment Plot	Depth (cm)	Sample Type	SAS No.	Al	As	Cd	Cu	Fe	Pb	Mn	Zn
27	DP 22	15-60	N	5398H-137	390	136	3.0	310	399 J-D	7.2	336 J-D	62.0
27	DP 22	60-120	N	5398H-138	83.3	43.9	4.7	193	88.0 J-D	4.7	902 J-D	606
33	IN 1	0-15	N	5398H-139	241	46.2	2.5	352	1100J-D	17.7	218 J-D	33.2
33	IN 1	15-60	N	5398H-140	50.7	1.6	28.4	291	355 J-D	2.7	11200 J-D	5080
33	IN 1	60-90	N	5398H-141	672	1.2	233	608	448 J-D	1.3	1060 J-D	3640
33	DP 2	0-15	N	5398H-142	557	47.7	3.5	336	1170 J-D	23.2	132 J-D	83.5
33	DP 2	15-60	N	5398H-143	147	7.4	8.1	166	238 J-D	3.9	1180 J-D	500
33	DP 2	60-90	N	5398H-144	110	14.8	3.1	80.9	136 J-D	0.98	573 J-D	91.7
33	CL 4	0-15	N	5398H-145	26400	13.3	378	59700	1370 J-D	21.1	46600 J-D	65300
33	CL 4	15-60	N	5398H-146	128	16.4	13.6	247	255 J-D	12.9	1890 J-D	1150
33	CL 4	60-120	N	5398H-147	28.2	23.8	2.1	6.8	34.7 J-D	0.42 U	3.4 J-D	4.1
33	CL 4	120-150	N	5398H-148	155	12.4	0.94	9.7	137 J-D	0.47	25.1 J-D	42.6
33	AG 5	0-15	N	5398H-149	164	25.1	4.1	385	337 J-D	14.4	1320 J-D	86.6
33	AG 5	0-15	R	5398H-150	229	26.6	1.4	283	435 J-D	18.3	371 J-D	84.9
33	AG 5	15-60	N	5398H-151	106	17.2	16.7	203	151 J-D	6.6	3500 J-D	1420
33	AG 5	15-60	R	5398H-152	227	14.8 J-E	171	1270	404 J-D	18.9	35500 J-D	29400
33	AG 5	60-120	N	5398-H153	113	147	1.6	14.3	96.1 J-D	0.49	14.8 J-D	14.3
33	AG 5	60-120	R	5398H-154	1350	316	2.2	69.8	719 J-D	2.8	138 J-D	123
33	TS 6	0-24 CS	N	5398H-155	92.3	18.0	0.52	56.2	74.5 J-D	0.40	17.4 J-D	6.7
33	TS 6	24-38 CS	N	5398H-156	131	22.7	2.0	46.0	118 J-D	0.68	26.9 J-D	65.2
33	TS 6	0-15	N	5398H-157	9450 J-D	265 J-D	5.2	1640 J-D	17200 J-DE	425 J-D	953 J-D	997 J-D
33	TS 6	15-60	N	5398H-158	273 J-D	21.0 J-D	14.7	254 J-D	674 J-DE	26.6 J-D	12800 J-D	1010 J-D
33	TS 6	60-120	N	5398H-159	136 J-D	11.5 J-D	19.1	277 J-D	236 J-DE	7.8 J-D	7880 J-D	1630 J-D
33	AG 5	-	CCB	5398H-160	87.2	1.7	3.8	3.0	250	1.1	14.4	97.6
33	AG 5	-	BB	5398H-161	20.0 U	1.0 U	2.0 U	2.0 U	9.7	1.0 U	1.3	6.9
33	AG 7	0-15	N	5398H-162	170 J-D	34.0 J-D	10.5	243 J-D	274 J-DE	22.5 J-D	1710 J-D	528 J-D
33	AG 7	15-60	N	5398H-163	403 J-D	23.2 J-D	3.0	403 J-D	1030 J-DE	9.7 J-D	554 J-D	88.1 J-DB
33	AG 7	60-120	N	5398H-164	421 J-D	59.7 J-D	1.6	53.9 J-D	378 J-DE	2.2 J-D	30.5 J-D	63.6 J-DB
33	DP 8	15-60	N	5398H-165	108 J-D	25.6 J-D	2.5	63.6 J-D	166 J-DE	2.9 J-D	56.3 J-D	31.1 J-DB
33	DP 8	60-120	N	5398H-166	83.3 J-D	19.4 J-D	1.1	53.8 J-D	141 J-DE	2.3 J-D	44.3 J-D	15.1 J-DB
33	TS 9	0-24 CS	N	5398H-167	46.9 J-D	20.9 J-D	0.69	82.8 J-D	64.3 J-DE	0.28 UJ-D	26.4 J-D	7.7 J-DB
33	TS 9	24-42 CS	N	5398H-168	71.1 J-D	17.1 J-D	2.0	51.8 J-D	258 J-ED	1.2 J-D	44.6 J-D	26.4 J-BD
33	TS 9	0-15	N	5398H-169	126 J-D	15.6 J-D	2.1	238 J-D	412 J-ED	7. 0 J-D	1070 J-D	55.2 J-DB
33	TS 9	15-60	N	5398H-170	105 J-D	5.3 J-D	6	144 J-D	544 J-ED	6.3 J-D	7880 J-D	816 J-D

Water soluble metals (ug/kg) in amended materials and soils
collected from STARS field plots.
Spring 1990 data.

Site	Treatment Plot	Depth (cm)	Sample Type	SAS No.	Al	As	Cd	Cu	Fe	Pb	Mn	Zn
33	TS 9	60-120	N	5398H-171	57200 J-D	0.84 J-D	415	55200 J-D	736 J-ED	7.9 J-D	87200 J-D	75200 J-D
33	IN 10	0-15	N	5398H-172	347 J-D	36.6 J-D	2.1	358 J-D	849 J-DE	25.0 J-D	241 J-D	84.8 J-DB
33	IN 10	15-60	N	5398H-173	243 J-D	18.0 J-D	15.9	282 J-D	493 J-ED	19.2 J-D	1820 J-D	958 J-D
33	IN 10	60-120	N	5398H-174	124 J-D	28.8 J-D	1.2	13.4 J-D	111 J -ED	1.3 J-D	10.4 J-D	78.7 J-DB
33	IN 10	120-180	N	5398H-175	84.0 J-D	20.2 J-D	0.80	15.8 J-D	77.7 J-ED	0.40 J-D	5.7 J-D	21.4 J-DB
33	CL 12	0-15	N	5398H-176	5410 J-D	17.6 J-D	702	50700 J-D	731 J-ED	31.7 J-D	106000 J-D	128000 J-D
33	CL 12	15-60	N	5398H-177	425 J-D	12.2 J-D	359	6880 J-D	362 J-DE	41.7 J-D	52200 J-D	69300 J-D
33	CL 12	60-120	N	5398H-178	210 J-D	104 J-D	1.0	35.5 J-D	181 J-DE	5.0 J-D	33.0 J-D	25.1 J-DB
33	CL 12	120-180	N	5398H-179	86.2 J-D	15.3	0.72 U-JD	8.1	97.8 J-DEB	0.36 UJ-D	5.4 J-B	8.2 J-DB
33	IN 13	15-60	N	5398H-180	377 J-D	29.1 S	15.2 J-D	392	1000 J-DE	22.2 J-D	1120	861 J-D
33	IN 13	60-120	N	5398H-181	146 J-D	62.3	2.8 J-D	66.8	142 J-DEB	0.92 J-D	42.9 J-B	152 J-D
33	IN 13	120-180	N	5398H-182	3930 J-D	24.5	1.2 UJ-D	32.8	4210 J-DE	9.9 J-D	248	239 J-D
33	TS 14	0-24 CS	N	5398H-183	1170 J-D	27.1	0.63 U-JD	96.5	1180 J-DE	12.2 J-D	88.4	37.8 J-DB
33	TS 14	24-35 CS	N	5398H-184	727 J-D	29.3	0.85 J-D	225	804 J-DE	7.8 J-D	62.5	19.7 J-DB
33	TS 14	0-15	N	5398H-185	294 J-D	38.8	2.8 J-D	414	521 J-DE	13.4 J-D	883	65.3 J-DB
33	TS 14	15-60	N	5398H-186	159 J-D	25.7	11.2 J-D	255	307 J-DEB	9.2 J-D	1580	532 J-D
33	TS 14	60-120	N	5398H-187	206 J-D	34.3	1.6 J-D	74.2	238 J-DEB	4.2 J-D	16.7 J-B	37.0 J-DB
33	CL 16	0-15	N	5398H-188	776 J-D	11.4	484 J-D	11600	762 J-DE	28.1 J-D	124000	85900 J-D
33	CL 16	0-15	R	5398H-189	271 J-D	20.7	45.4 J-D	544	623 J-DE	22.9 J-D	48700	6390 J-D
33	CL 16	15-60	N	5398H-190	156 J-D	14.9	37.2 J-D	541	255 J-DEB	10.6 J-D	15600	2680 J-D
33	CL 16	15-60	R	5398H-191	69.5 J-D	4.2	269 J-D	3700	105 J-DEB	21.1 J-D	57900	39200 J-D
33	CL 16	60-120	N	5398H-192	308 J-D	1350	2.2 U-JD	205	334 J-DEB	0.56 UJ-DE	33.6 J-B	141 J-D
33	CL 16	60-120	R	5398H-193	391 J-D	887	1.1 UJ-D	167	365 J-DEB	0.55 J-DE	21.8 J-B	47.0 J-DB
33	CL 16	120-180	N	5398H-194	248 J-D	112	1.0 UJ-D	152	288 J-DEB	0.80 J-DE	61.8	32.8 J-DB
33	CL 16	120-180	R	5398H-195	107 J-D	161	0.96 UJ-D	101	110 J-DEB	0.48 UJ-DE	8.4 J-B	64.8 J-DB
33	CL 16	-	BB	5398H-196	20.0	1.0	2.0	7.0	9.0	1.0	1.0	2.2
33	CL 16	-	CCB	5398H-197	132	1.8	2.0	7.0	141	1.0	22.0	44.1
33	DP 17	15-60	N	5398H-198	245 J-D	125	0.93 UJ-D	60.1	243 J-DEB	0.65 J-DE	11.4 J-B	12.6 J-DB
33	DP 17	60-120	N	5398H-199	194 J-D	79.0	7.2 J-D	1030	377 J-DEB	8.3 J-D	4330	254 J-D
33	DP 17	120-180	N	5398H-200	151 J-D	83.5	0.99 UJ-D	56.9	152 J-DEB	0.49 UJ-D	5.4 J-B	21.6 J-DB
33	AG 18	0-15	N	5398H-201	238 J-DE	77.2	15.1 J-D	733 J-D	1030 J-DE	16.6 J-D	483 J-D	43.7 J-D
33	AG 18	15-60	N	5398H-202	163 J-DE	23.6 S	44.9 J-D	530 J-D	228 J-DE	6.1 J-D	8790 J-D	3110 J-D
33	AG 18	60-120	N	5398H-203	143 J-DE	31.0	1.6 J-D	108 J-D	146 J-DE	0.56 UJ-D	51.4 J-D	20.8 J-D
33	TS 19	0-24 CS	N	5398H-204	72.3 J-DE	111	0.96 J-D	11.2 J-D	63.3 J-DE	0.29 UJ-D	4.1 J-D	35.8 J-D

Water soluble metals (ug/kg) in amended materials and soils
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Spring 1990 data.

Site	Treatment Plot	Depth (cm)	Sample Type	SAS No.	Al	As	Cd	Cu	Fe	Pb	Mn	Zn
33	TS 19	0-15	N	5398H-205	563 J-DE	37.4	2.3 J-D	277 J-D	2040 J-DE	41.4 J-D	424 J-D	61.0 J-D
33	TS 19	15-60	N	5398H-206	145 J-DE	10.6	4.8 J-D	65.1 J-D	180 J-DE	2.9 J-D	50.5 J-D	335 J-D
33	TS 19	60-120	N	5398H-207	169 J-DE	29.6	0.90 UJ-D	17.6 J-D	157 J-DE	0.67 J-D	7.9 J-D	35.0 J-D
33	CL 20	0-15	N	5398H-208	5890 J-ED	123	3.2 J-D	687 J-D	12400 J-DE	72.6 J-D	3060 J-D	694 J-D
33	CL 20	15-60	N	5398H-209	8980 J-DE	7.6 S	220 J-D	34000 J-D	585 J-DE	22.5 J-D	40100 J-D	49100 J-D
33	CL 20	60-120	N	5398H-210	270 J-DE	16.8	7.1 J-D	164 J-D	334 J-DE	9.0 J-D	474 J-D	454 J-D
33	CL 20	120-180	N	5398H-211	190 J-DE	19.4	0.85 UJ-D	35.8 J-D	159 J-DE	0.72 J-D	10.2 J-D	40.3 J-D
33	AG 21	0-15	N	5398H-212	173 J-DE	21.7 J-D	7.3 J-D	325 J-D	429 J-DE	7.7 J-D	5950 J-D	247 J-D
33	AG 21	15-60	N	5398H-213	158 J-DE	12.1 S	34.6 J-D	422 J-D	255 J-DE	6.3 J-D	16000 J-D	3670 J-D
33	AG 21	60-120	N	5398H-214	408 J-DE	204	1.0 UJ-D	33.2 J-D	341 J-DE	0.67 J-D	57.2 J-D	94.3 J-D
33	IN 22	15-60	N	5398H-215	195 J-DE	14.8 S	16.1 J-D	311 J-D	292 J-DE	7.4 J-D	3480 J-D	941 J-D
33	IN 22	60-120	N	5398H-216	429 J-DE	120	1.2 UJ-D	31.3 J-D	373 J-DE	0.59 U-JD	19.0 J-D	66.3 J-D
33	IN 22	120-150	N	5398H-217	152 J-DE	54.0	1.0 UJ-D	31.4 J-D	112 J-DE	0.52 UJ-D	4.3 J-D	83.2 J-D
33	DP 23	15-60	N	5398H-218	139 J-DE	24.7	4.8 J-D	254 J-D	207 J-DE	3.4 J-D	128 J-D	173 J-D
33	DP 23	60-120	N	5398H-219	173 J-DE	54.2	0.92 UJ-D	15.5 J-D	157 J-DE	0.46 UJ-D	4.4 J-D	32.1 J-D
33	DP 23	120-180	N	5398H-220	224 J-DE	21.1	1.2 J-D	38.5 J-D	218 J-DE	0.54 J-D	8.6 J-D	36.1 J-D
7	AG 1	0-15	N	5398H-221	81.0	29.0	1.1	149	156 J-D	5.1	37.8 J-B	43.7 J-B
7	AG 1	15-60	N	5398H-222	309	1.4 J-E	54.8	189	284 J-D	6.7	59800	28100
7	AG 1	60-120	N	5398H-223	582	12.2	3.5	5.2	2280 J-D	4.9	22100	47500
7	DP 3	15-60	N	5398H-224	1750	124	0.83	452	8130 J-D	118 J-D	327	165
7	IN 5	15-60	N	5398H-225	210	20.9	6.6	87.4	843 J-D	18.7	1330	1280
7	TS 6	0-24 CS	N	5398H-226	57.2	19.1	0.35	36.6	45.0 J-D	0.44	9.7 J-B	15.8 J-B
7	TS 6	24-30 CS	N	5398H-227	162	50.1	0.62	41.4	156 J-D	1.1	10.6 J-B	9.7 J-B
7	IN 8	15-60	N	5398H-228	4550	429	0.58	435	26100 J-D	223 J-D	473	350
7	IN 8	60-120	N	5398H-229	397	18.9	10.5	226	510 J-D	10.6	99.9	107
7	DP 9	15-60	N	5398H-230	217	19.7	1.9	157	420 J-D	14.6	124	79.7
7	DP 9	60-120	N	5398H-231	104	7.5	2.8	112	222 J-D	6.2	465	114
7	AG 10	0-15	N	5398H-232	88.9	57.2	0.48	249	200 J-D	23.8	94.4	17.2 J-B
7	AG 10	0-15	R	5398H-233	2400	187	2.6	509	7540 J-D	269 J-D	493	232
7	AG 10	15-60	N	5398H-234	1570	7.3	27.9	5550	907 J-D	19.3	2550	6950
7	AG 10	15-60	R	5398H-235	76.2	6.1	9.0	839	198 J-D	9.6	3350	2210
7	AG 10	60-120	R	5398H-236	184	16.2	2.7	70.0	1180 J-D	23.5	1740	369
7	AG 10	60-120	R	5398H-237	1020	3.6	466	138000	443 J-D	15.2	9120	22800
7	C 11	0-15	N	5398H-238	627	51.0	8	905	1980 J-D	61.8 J-D	2500	2470

Water soluble metals (ug/kg) in amended materials and soils
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Spring 1990 data.

Site	Treatment	Plot	Depth (cm)	Sample Type	SAS No.	Al	As	Cd	Cu	Fe	Pb	Mn	Zn
7	AG	10	-	BB	5398H-239	20.0	1.0	2.0	7.0	9.0	1.0	1.0	3.1
7	AG	10	-	CCB	5398H-240	20.0	1.0	2.0	7.0	90.0	1.1	62.2	45.6
7	CL	11	15-60	N	5398H-241	132	20.0	0.47	55.9	94.8 J-D	0.52	4.7 J-B	20.0 J-B
7	TS	12	0-24 CS	N	5398H-242	302	57.8	3.4	93.9	1540 J-D	25.9	2830	566
7	TS	12	24-38 CS	N	5398H-243	35.6 J-D	62.2	0.73 J-D	12.0 J-D	43.0	0.49 J-D	2.1 J-D	1.9 J-D
7	TS	12	0-15	N	5398H-244	12.4 J-D	40.4	1.3 J-D	19.0 J-D	75.4	2.9 J-D	65.4 J-D	7.9 J-D
7	TS	12	15-60	N	5398H-245	81.9 J-D	24.7	1.1 J-D	85.3 J-D	272	12.8 J-D	828 J-D	86.2 J-D
7	TS	13	0-24 CS	N	5398H-246	15.9 J-D	58.2	0.68 J-D	39.4 J-D	31.8	0.51 J-D	6.7 J-D	3.2 J-D
7	TS	13	0-15	N	5398H-247	37.6 J-D	63.9	1.7 J-D	92.9 J-D	66.6	7.2 J-D	206 J-D	31.0 J-D
7	TS	13	15-60	N	5398H-248	12.0 J-D	8.0	108 J-D	647 J-D	92.2	169 J-D	45000 J-D	12700 J-D
7	TS	13	60-120	N	5398H-249	369 J-D	3.6	20.9 J-D	73.4 J-D	399	23.0 J-D	1401 J-D	7640 J-D
7	DP	14	15-60	N	5398H-250	140 J-D	2.6	103 J-D	3190 J-D	60.9	18.7 J-D	10200 J-D	17100 J-D
7	DP	14	60-120	N	5398H-251	86.5 J-D	4.9	16.4 J-D	83.7 J-D	102	3.9 J-D	4110 J-D	3050 J-D
7	DP	14	120-180	N	5398H-252	63.5 J-D	1.4	73.7 J-D	87.3 J-D	73.3	2.0 J-D	3090 J-D	20500 J-D
7	AG	16	0-15	N	5398H-253	830 J-D	48.0	1.5 J-D	167 J-D	1520	77.0 J-D	466 J-D	200 D-D
7	AG	16	15-60	N	5398H-254	3540 J-D	12.8	148 J-D	21600 J-D	119 J-D	43.6 J-D	11200 J-D	28900 J-D
7	AG	16	60-120	N	5398H-255	914 J-D	8.4	419 J-D	31500 J-D	466	371 J-D	146000 J-D	131000 J-D
7	CL	17	0-15	N	5398H-256	1010J-D	69.5	9.5 J-D	375 J-D	2080	111 J-D	1780 J-D	1620 J-D
7	CL	17	15-60	N	5398H-257	4410 J-D	39.8	154 J-D	17300 J-D	1110	118 J-D	17000 J-D	37500 J-D
7	CL	17	60-120	N	5398H-258	460 J-D	7.1	210 J-D	18300 J-D	179	430 J-D	48500 J-D	58600 J-D
7	CL	17	120-180	N	5398H-259	304 J-D	9.8	98.7 J-D	752 J-D	492	337 J-D	28200 J-D	10500 J-D
7	IN	18	15-60	N	5398H-260	89.4 J-D	30.2	48.2 J-D	853 J-D	853	239 J-D	32300 J-D	13100 J-D
7	IN	18	60-120	N	5398H-261	93.8 J-D	7.4	17.2 J-D	195 J-D	171	82.0 J-D	16300 J-D	1280 J-D
7	IN	18	120-180	N	5398H-262	146 J-D	4.5	1.4 J-D	14.1 J-D	228	5.6 J-D	50600 J-D	3440 J-D
7	TS	19	0-24 CS	N	5398H-263	70.1 J-D	36.3 J-D	0.79 J-D	25.1 J-D	59.3 J-D	0.81 J-D	4.8 J-B	8.9 J-DB
7	TS	19	24-40 CS	N	5398H-264	45.5 J-D	17.0 J-D	1.1 J-D	24.1 J-D	38.7 J-D	0.78 J-D	5.5 J-B	41.9 J-DB
7	TS	19	0-15	N	5398H-265	105 J-D	20.3 J-D	2.2 J-D	147 J-D	174 J-D	10.9 J-D	1470	185 J-D
7	TS	19	15-60	N	5398H-266	299 J-D	6.2 J-D	236 J-D	8770 J-D	206 J-D	8.3 J-D	21800	53700 J-D
7	TS	19	60-90	N	5398H-267	1590 J-D	19.2 J-D	4190 J-D	58300 J-D	175 J-D	127	49800	346000 J-D
7	DP	20	15-60	N	5398H-268	170 J-D	27.6 J-D	9.7 J-D	148 J-D	1040 J-D	57.2	9560	2140 J-D
7	DP	20	60-120	N	5398H-269	211 J-D	10.0 J-D	54.0 J-D	2110 J-D	463 J-D	117	13100	12600 J-D
7	CL	21	0-15	N	5398H-270	176 J-D	27.1 J-D	8.0 J-D	677 J-D	299 J-D	17.2 J-D	1250	1410 J-D
7	CL	21	0-15	R	5398H-271	103 J-D	31.5 J-D	2.9 J-D	82.7 J-D	206 J-D	12.5 J-D	1750	490 J-D
7	CL	21	15-60	N	5398H-272	726 J-D	20.5 J -D	40.1 J-D	6040 J-D	450 J-D	80.6	4920	8780 J-D

Water soluble metals (ug/kg) in amended materials and soils
collected from STARS field plots.
Spring 1990 data.

Site	Treatment	Plot	Depth (cm)	Sample Type	SAS No.	Al	As	Cd	Cu	Fe	Pb	Mn	Zn
7	CL	21	15-60	R	5398H-273	893 J-D	8.5 J-D	21.1 J-D	3050 J-D	191 J-D	41.6	3680	4990 J-D
7	CL	21	-	BB	5398H-274	40.0	1.0	2.0	7.0	9.0	1.0 J-E	1.0	2.1
7	CL	21	-	CCB	5398H-275	38.8	1.0	2.0	7.0	9.0	1.0	60.0	55.0
7	IN	22	15-60	N	5398H-276	114 J-D	14.8 J-D	15.7 J-D	176 J-D	285 J-D	25.5 J-D	5770	3130 J-D
7	IN	22	60-120	N	5398H-277	66.9 J-D	18.1 J-D	1.3 J-D	154 J-D	214 J-D	38.1	401	57.8 J-DB
7	AG	23	0-15	N	5398H-278	33.2 J-D	59.7 J-D	0.39 J-D	52.8 J-D	34.0 J-D	2.4 J-D	103	52.7 J-DB
7	AG	23	15-60	N	5398H-279	2250 J-D	2.6 J-D	74.6 J-D	9410 J-D	72.7 J-D	180	13200	20200 J-D
7	AG	23	60-120	N	5398H-280	78.4 J-D	4.9 J-D	62.6 J-D	142 J-D	148 J-D	140	17200	4160 J-D
2	TS	1	0-24CS	N	5398H-281	44.6	329 J-D	2.2	28.7	46.3 J-D	0.37	4.0	3.9
2	TS	1	0-15	N	5398H-282	22.0	296 J-D	4.9	65.9	45.8 J-D	4.7	110	37.7
2	TS	1	15-60	N	5398H-283	18.7	255 J-D	26.2	134	102 J-D	16.3	7150	13600
2	TS	1	60-120	N	5398H-284	995	150 J-D	800	138000	693 J-D	37.6	37500	237000
2	AG	2	0-15	N	5398H-285	41.3	52.0 J-D	33.8	35.3	142 J-D	0.45	18600	3640
2	AG	2	15-60	N	5398H-286	10500	637 J-D	10400	118000	8280 J-D	989 J-D	410000	4880000
2	AG	2	60-120	N	5398H-287	20000	665 J-D	24600	113000	23600 J-D	1930 J-D	1160000	6260000
2	IN	3	0-15	N	5398H-288	101	170 J-D	4.1	81.1	330 J-D	62.3 J-D	734	406
2	IN	3	15-60	N	5398H-289	5800	46.5 J-D	15100	149000	1460 J-D	352 J-D	348000	2690000
2	IN	3	60-120	N	5398H-290	157	51.0 J-D	5160	1370	607 J-D	987 J-D	461000	1310000
2	IN	3	120-150	N	5398H-291	339	20.3 J-D	23900	2170	509 J-D	421 J-D	206000	738000
2	CL	4	0-15	N	5398H-292	19800	153 J-D	2860	142000	4340 J-D	100 J-D	104000	1200000
2	CL	4	15-60	N	5398H-293	32100	2180 J-D	1680	214000	15800 J-D	560 J-D	48100	655000
2	CL	4	60-120	N	5398H-294	36200	2250 J-D	3340	340000	132000 J-D	179	76700	777000
2	CL	4	120-150	N	5398H-295	4390	781 J-D	441	104000	9330 J-D	1670 J-D	27600	154000
2	EX	5	0-15	N	5398H-296	86.6	109 J-D	20.7	134	421 J-D	94.4 J-D	1180	1020
2	EX	5	15-60	N	5398H-297	51100	679 J-D	2460	226000	124000 J-D	171 J-D	54600	858000
2	EX	5	60-120	N	5398H-298	18600	970 J-D	1410	212000	153000 J-D	80.8 J-D	63200	578000
2	EX	5	0-15	R	5398H-299	163	132 J-D	22.9	403	558 J-D	83.2 J-D	1520	3510
2	EX	5	15-60	R	5398H-300	35900	1120 J-D	1820	144000	126000 J-D	57.3 J-D	51600	717000
2	EX	5	60-120	R	5398H-301	10900 J-D	422 J-D	1390	332000 J-E	36000 J-D	14.7 J-DB	68500 J-E	541000
2	EX	5	-	CCB	5398H-302	68.9	15.9	2.0	251	553	19.2	126	529
2	EX	5	-	BB	5398H-303	20.0	1.0	2.0	7.0	13.4	1.0	1.0	20.2
2	DP	6	0-15	N	5398H-304	42.3 J-D	80.1 J-DB	0.75	447 J-EB	85.6 J-DB	10.5 J-DB	3.6 J-EB	101 J-B
2	DP	6	15-60	N	5398H-305	21.2 J-D	289 J-D	0.72	402 J-EB	118 J-DB	13.3 J-DB	5.6 J-EB	80.1 J-B
2	DP	6	60-120	N	5398H-306	175 J-D	70.8 J-D	5	41400 J-E	386 J-DB	52.9 J-DB	56900 J-E	399000

Water soluble metals (ug/kg) in amended materials and soils
collected from STARS field plots.
Spring 1990 data.

Site	Treatment	Plot	Depth (cm)	Sample Type	SAS No.	Al	As	Cd	Cu	Fe	Pb	Mn	Zn
2	DP	6	120-180	N	5398H-307	121 J-D	20.7 J-DB	395	27300 J-E	165 J-DB	30.6 J-DB	59800 J-E	230000
2	TS	7	0-24	CS	5398H-308	102 J-D	35.5 J-D	9.8	113 J-EB	114 J-DB	3.6 J-DB	193 J-E	217 J-B
2	TS	7	24-32	CS	5398H-309	52.0 J-D	229 J-D	0.51	43.1 J-EB	65.3 J-DB	1.8 J-DB	14.4 J-EB	43.7 J-B
2	T	7	0-15	N	5398H-310	80.9 J-D	260 J-D	12.9	185 J-EB	115 J-DB	18.1 J-DB	467 J-E	2370
2	TS	7	15-60	N	5398H-311	703 J-D	75.6 J-D	2100	268000 J-E	672 J-DB	844 J-DB	17000 J-E	709000
2	TS	7	60-120	N	5398H-312	786 J-D	218 J-D	1030	180000 J-E	1180 J-D	199 J-D	12800 J-E	399000
2	AG	8	0-15	N	5398H-313	120 J-D	146 J-D	7.3	336 J-EB	438 J-DB	75.3 J-D	802 J-E	1450
2	AG	8	15-60	N	5398H-314	1060 J-D	95.6 J-D	2340	40300 J-E	838 J-DB	57.3 J-D	113000 J-E	1610000
2	AG	8	60-120	N	5398H-315	6030 J-D	39.7 J-ED	6470	662000 J-E	726 J-DB	1000 J-D	195000 J-E	2170000
2	EX	9	0-15	N	5398H-316	41.3 J-D	61.1 J-D	14.5	1650 J-E	247 J-DB	26.3 J-DB	810 J-E	1930
2	EX	9	15-60	N	5398H-317	3880 J-D	30.3 J-D	75100	99300 J-E	620 J-DB	740 J-D	440000 J-E	5680000
2	EX	9	60-120	N	5398H-318	2960 J-D	68.6 J-D	1140	1570 J-E	797 J-DB	1990 J-D	683000 J-E	4070000
2	DP	10	0-15	N	5398H-319	59.7 J-D	99.5 J-D	0.97	472 J-EB	272 J-DB	31.8 J-DB	19.1 J-EB	265 J-B
2	DP	10	15-60	N	5398H-320	77.3 J-D	60.7 J-D	29.0	653 J-E	268 J-DB	90.0 J-D	473 J-E	2640
2	DP	10	60-120	N	5398H-321	227 J-D	47.0 J-D	22500	4090 J-E	292 J-DB	764 J-D	126000 J-E	459000
2	DP	10	120-180	N	5398H-322	186 J-D	17.2 J-DB	1400	1190 J-E	154 J-DB	369 J-D	56200 J-E	322000
2	IN	11	0-15	N	5398H-323	282 J-D	115	57.9 J-D	949 J-D	414 J-DE	46.7 J-D	974 J-D	3460 J-D
2	IN	11	15-60	N	5398H-324	421 J-D	35.1 J-E	64200 J-D	19400 J-D	841 J-DE	144 UJ-D	187000 J-D	3270000J-D
2	IN	11	60-120	N	5398H-325	280 J-D	74.2	524 J-D	420 J-D	357 J-DE	263 J-D	100928 J-D	30041 J-D
2	IN	11	120-180	N	5398H-326	115 J-D	12.7 J-E	736 J-D	247 J-D	156 J-DE	292 J-D	54300 J-D	199000 J-D
2	CL	12	0-15	N	5398H-327	13700 J-D	127 J-E	14500 J-D	1190000J-D	1420 J-DE	222 J-D	301000 J-D	7410000J-D
2	CL	12	15-60	N	5398H-328	18400 J-D	110	42900 J-D	1070000J-D	6000 J-DE	155 J-D	134000 J-D	2990000J-D
2	CL	12	60-120	N	5398H-329	1250 J-D	25.1	22900 J-D	27000 J-D	308 J-DE	919 J-D	94900 J-D	529000 J-D
2	CL	12	120-180	N	5398H-330	229 J-D	10.0 J-E	3620 J-D	4610 J-D	168 J-DE	474 J-D	71900 J-D	301000 J-D
2	IN	13	0-15	N	5398H-331	41.1 J-D	118	10.0 J-D	192 J-D	292 J-DE	71.7 J-D	89.3 J-D	737 J-D
2	IN	13	15-60	N	5398H-332	331 J-D	289	935 J-D	35100 J-D	573 J-DE	282 J-D	32700 J-D	315000 J-D
2	IN	13	60-120	N	5398H-333	54.9 J-D	61.1	93.8 J-D	3090 J-D	108 J-DE	22.4 J-D	12700 J-D	32500 J-D
2	AG	14	0-15	N	5398H-334	98.5 J-D	158	41.4 J-D	627 J-D	387 J-DE	60.5 J-D	27600 J-D	12100 J-D
2	AG	14	15-60	N	5398H-335	662 J-D	45.5	218 J-D	20600 J-D	775 J-DE	62.2 J-D	50100 J-D	83400 J-D
2	CL	15	0-15	N	5398H-336	542 J-D	190	567 J-D	38700 J-D	377 J-DE	66.3 J-D	67200 J-D	199000 J-D
2	CL	15	15-60	N	5398H-337	891 J-D	55.6	481 J-D	38300 J-D	612 J-DE	57.5 J-D	74600 J-D	217000 J-D
2	DP	16	0-15	N	5398H-338	54.6 J-D	7.6	4.8 J-D	703 J-D	164 J-DE	41.7 J-D	33.7 J-D	323 J-D
2	DP	16	15-60	N	5398H-339	35.4 J-D	81.7	54.5 J-D	253 J-D	84.6 J-DE	22.2 J-D	495 J-D	491 J-D
2	DP	16	60-120	N	5398H-340	325 J-D	56.7	559 J-D	1230 J-D	328 J-DE	350 J-D	11700 J-D	6330 J-D

Water soluble metals (ug/kg) in amended materials and soils
collected from STARS field plots.
Spring 1990 data.

Site	Treatment	Plot	Depth (cm)	Sample Type	SAS No.	Al	As	Cd	Cu	Fe	Pb	Mn	Zn
2	EX	17	0-15	N	5398H-341	108 J-D	391	10.2 J-D	362 J-D	575 J-DE	103 J-D	370 J-D	1340 J-D
2	EX	17	15-60	N	5398H-342	51.4 J-D	6.9 J-E	395 J-D	1490 J-D	117 J-DE	8.0 J-D	32600 J-D	60000 J-D
2	TS	18	0-24 CS	N	5398H-343	108 J-D	125	2.4	80.1	91.6 J-E	3.1 J-D	26.0	49.7
2	TS	18	24-36 CS	N	5398H-344	65.7 J-D	48.2	0.68	22.6	56.0 J-E	1.5 J-D	4.2	67.5
2	TS	18	0-15	N	5398H-345	28.1 J-D	67.9	42.8	89.5	98.3 J-E	14.3 J-D	8270	11600
2	TS	18	15-60	N	5398H-346	105 J-D	53.7	250	3660	372 J-D	88.6 J-D	41700	96000
2	TS	19	0-24 CS	N	5398H-347	56.6 J-D	83.5	1.7	57.0	39.4 J-E	2.6 J-D	140	94.0
2	TS	19	24-36 CS	N	5398H-348	114 J-D	72.4	11.2	80.1	101 J-E	6.2 J-D	625	1200
2	TS	19	0-15	N	5398H-349	173 J-D	118	346	539	402 J-E	77.2 J-D	11700	62400
2	TS	19	15-60	N	5398H-350	4460 J-D	101	1570	676000	1380 J-E	921 J-D	22400	502000
2	TS	19	60-120	N	5398H-351	367 J-D	83.1	316	173000	268 J-E	103 J-D	17900	137000
2	CL	20	0-15	N	5398H-352	76900 J-D	538	4120	175000	151000 J-E	66.3 J-D	464000	5850000
2	CL	20	15-60	N	5398H-353	37100 J-D	78.9	25300	416000	41300 J-E	253 J-D	377000	3790000
2	CL	20	60-120	N	5398H-354	199 J-E	13.2 J-E	8620	3570	234 J-E	568 J-D	84100	316000
2	CL	20	120-180	N	5398H-355	758 J-D	60.0	2500	515	466 J-E	1330 J-D	154000	655000
2	EX	21	0-15	N	5398H-356	107 J-D	42.0	68.8	214	264 J-E	19.5 J-D	7640	4430
2	EX	21	15-60	N	5398H-357	14800 J-D	67.0	19100	277000	3900 J-E	207 J-D	476000	6520000
2	EX	21	60-120	N	5398H-358	3290 J-D	147	2840	2150	2930 J-E	1580 J-D	317000	1950000
2	AG	22	0-15	N	5398H-359	64.1 J-D	316	6.4	152	514 J-E	99.9 J-D	785	1100
2	AG	22	15-60	N	5398H-360	4420 J-D	248	928	326000	2630 J-E	966 J-D	11300	231000
2	AG	22	60-120	N	5398H-361	2110 J-D	88.2	15400	136000	439 J-E	1010 J-D	85100	409000
2	AG	22	0-15	R	5398H-362	80.5 J-D	197	17.3	176	298 J-E	50.3 J-D	2150	2510
2	AG	22	15-60	R	5398H-363	51.7 J-D	39.2 J-D	1805	9683	227 J-DE	206 J-D	14256	157620
2	AG	22	60-120	R	5398H-364	797 J-D	35.6 J-D	13300	9630	293 J-DE	826 J-D	108000	607000
2	AG	22	-	CCB	5398H-365	20.0	1.0	6.8	245	9.0	1.8	449	1440
2	AG	22	-	BB	5398H-366	20.0	1.0	2.0	7.0	9.6	1.0	1.0	6.8
2	IN	23	0-15	N	5398H-367	117 J-D	130 J-D	18.0	248 J-B	600 J-DE	120 J-D	297 J-B	735 J-B
2	IN	23	15-60	N	5398H-368	4420 J-D	39.0 J-D	98500	319000	517 J-DE	577 J-D	101000	1310000
2	IN	23	60-120	N	5398H-369	209 J-D	17.6 J-D	14700	1500	216 J-DE	529 J-D	69000	320000
2	IN	23	120-180	N	5398H-370	128 J-D	2.6 J-D	1030	1420	120 J-DE	147 J-D	9680	13500
2	IN	23	120-180	N	5398H-371	34.9 J-D	64.7 J-D	1.3 J-B	288 J-B	65.3 J-DE	8.5 J-D	8.9 J-B	77.8 J-B
2	DP	24	15-60	N	5398H-372	29.7 J-D	84.3 J-D	6.4 J-B	210 J-B	119 J-DE	40.1 J-D	1680	1570 J-B
2	DP	24	60-120	N	5398H-373	218 J-D	152 J-D	28.9	809	456 J-DE	100 J-D	6080	3390
2	DP	24	120-180	N	5398H-374	112 J-D	65.8 J-D	4 J-B	492	197 J-DE	75.8 J-D	630	384 J-B

APPENDIX B2

EXTRACTABLE METALS IN SOILS

Station Location

First two numeric characters = Site #
Alpha character = Treatment
Last two numeric characters = Plot #

Sample Type

N = Natural
R = Replicate

Data Qualifiers

U = Undetected at level shown
JB = Estimated value - blank contamination

Extractable metals (ug/L) in amended tailings/soils from STARS Phase III field plots. 1991 data. Silver Bow Creek RI/FS.

Station Location	SITE	TRT	PLOT	Depth (cm)	pH	EC	SMO Number	Sample Type	Date Collected	Al	As	Cd	Cu	Fe	Pb	Mn	Zn	Comments
07A16	7	A	16	0-15	6.87	0.03	SC-001	N	06/91	0.93	198.0	0.28	26.5	0.66	0.56	10.1	13.1	
07A16	7	A	16	15-46	6.61	0.01	SC-002	N	06/91	0.86	94.4	0.44	55.5	0.60 U	2.40	21.3	23.7	
07A23	7	A	23	0-15	7.2	0.18	SC-003	N	06/91	0.65 U	206.0	0.29	56.2	0.60 U	1.30	10.7	21.0	
07A23	7	A	23	15-46	5.65	0.43	SC-004	N	06/91	0.65 U	334.0	0.61	127.0	0.60 U	4.90	54.7	86.1	
07C17	7	C	17	0-15	6.49	0.05	SC-011	N	06/91	0.65 U	88.7	0.35	54.2	0.60 U	0.30	37.9	18.5	
07C17	7	C	17	15-46	6.16	0.08	SC-012	N	06/91	0.72	85.0	0.42	65.5	0.60 U	2.00	23.8	24.3	
07C21	7	C	21	0-15	5.88	0.08	SC-013	N	06/91	0.81	434.0	0.46	101.0	0.60 U	0.54	35.7	31.3	
07C21	7	C	21	15-46	5.75	0.15	SC-014	N	06/91	0.76	287.0	0.58	158.0	0.59 U	2.30	56.8	66.7	
07D14	7	D	14	0-15	7.78	0.3	SC-015	N	06/91	0.65 U	253.0	0.88	131.0	0.60 U	6.20	7.0	40.3	
07D14	7	D	14	15-46	7.42	0.74	SC-016	N	06/91	0.65 U	447.0	0.76	165.0	0.60 U	17.40	25.7	50.9	
07D20	7	D	20	0-15	7.77	2.93	SC-017	N	06/91	0.65 U	157.0	0.20	14.3	0.60 U	0.15	8.6	7.2	
07D20	7	D	20	15-46	7.4	3.05	SC-018	N	06/91	0.65 U	227.0	0.13	11.7	0.60 U	0.11	13.6	9.0	
07I18	7	I	18	0-15	8.83	0.98	SC-005	N	06/91	0.69	140.0	0.14	9.2	0.60 U	0.52	1.4	2.3	
07I18	7	I	18	15-46	7.77	3.7	SC-006	N	06/91	0.81	183.0	0.19	126.0	0.60 U	0.89	20.6	14.9	
07I22	7	I	22	0-15	8.92	1.05	SC-007	N	06/91	0.65 U	42.4	0.10 U	19.3	0.60 U	0.18	1.0	3.8	
07I22	7	I	22	15-46	8.16	0.53	SC-009	N	06/91	0.65 U	233.0	0.31	55.6	0.60 U	0.27	4.9	15.0	
07T13	7	T	13	0-15	7.91	3.26	SC-021	N	06/91	1.00	214.0	0.61	183.0	0.72	5.60	34.1	49.9	
07T13CS	7	T	13	0-23	7.89	0.51	SC-019	N	06/91	0.75	9.4	0.10 U	0.1 UJB	0.60 U	0.02	0.6	0.2	
07T13	7	T	13	15-46	7.58	3.35	SC-022	N	06/91	0.87	291.0	0.55	459.0	0.60 U	349.00	58.7	75.6	
07T13CS	7	T	13	23-46	7.93	2.62	SC-020	N	06/91	0.65 U	48.9	0.12	11.7	0.60 U	0.42	2.2	2.0	
07T19	7	T	19	0-15	7.8	4.24	SC-025	N	06/91	0.67	102.0	0.64	76.9	0.63	0.55	15.9	39.1	
07T19CS	7	T	19	0-23	8.2	0.88	SC-023	N	06/91	0.96	20.6	0.10 U	0.6	0.60 U	0.11	0.9	0.4	
07T19	7	T	19	15-46	7.79	2.67	SC-026	N	06/91	0.95	84.3	0.87	121.0	0.60 U	0.81	29.7	62.5	
07T19CS	7	T	19	23-46	7.83	3.49	SC-024	N	06/91	0.70	43.0	0.10 U	7.2	0.60 U	0.23	1.6	2.2	
21A15	21	A	15	0-15	7.53	8.73	SC-027	N	06/91	0.99	52.3	3.20	291.0	1.80	0.03	374.0	226.0	
21A15	21	A	15	15-46	6.96	4.79	SC-028	N	06/91	1.80	102.0	4.00	1180.0	1.90	299.00	628.0	284.0	
21A23	21	A	23	0-15	7.82	5.61	SC-029	N	06/91	0.95	61.1	1.10	94.9	1.30	0.02 U	181.0	90.4	
21A23	21	A	23	15-46	6.67	5.64	SC-030	N	06/91	0.92	190.0	1.70	417.0	0.60 U	36.00	460.0	144.0	
21C18	21	C	18	0-15	4.25	8.54	SC-043	N	06/91	2.10	1490.0	2.70	329.0	2.50	0.05	1060.0	609.0	
21C18	21	C	18	15-46	5.2	6.75	SC-044	N	06/91	3.00	341.0	3.10	750.0	7.50	398.00	1250.0	727.0	
21C20	21	C	20	0-15	5.15	6.51	SC-045	N	06/91	2.20	572.0	3.80	518.0	2.50	0.07	912.0	510.0	
21C20	21	C	20	15-46	5.99	7.13	SC-046	N	06/91	4.20	89.8	6.10	1730.0	11.20	1690.00	1740.0	724.0	
21D17	21	D	17	0-15	7.49	7.63	SC-047	N	06/91	2.20	24.2	2.50	655.0	2.90	93.00	257.0	141.0	

Extractable metals (ug/L) in amended tailings/soils from STARS Phase III field plots. 1991 data. Silver Bow Creek RI/FS.

Station Location	SITE	TRT	PLOT	Depth (cm)	pH	EC	SMO Number	Sample Type	Date Collected	Al	As	Cd	Cu	Fe	Pb	Mn	Zn	Comments
21D17	21	D	17	0-15	7.49	7.63	SC-047	N	06/91	2.20	24.2	2.50	655.0	2.90	93.00	257.0	141.0	
21D17	21	D	17	15-46	7.31	4.55	SC-048	N	06/91	3.00	71.4	4.30	1450.0	3.30	1200.00	330.0	254.0	
21D21	21	D	21	0-15	7.66	13.88	SC-049	N	06/91	2.20	8.5	2.60	876.0	2.80	34.50	227.0	158.0	
21D21	21	D	21	15-46	7.38	8.45	SC-050	N	06/91	2.30	4.1	4.60	1130.0	2.70	282.00	704.0	302.0	
21I14	21	I	14	0-15	8.29	17.45	SC-039	N	06/91	0.86	20.4	1.80	389.0	1.70	0.10	50.2	164.0	
					7.66	9.29												
21I24	21	I	24	0-15	8.05	9.01	SC-040	N	06/91	0.70	44.6	0.72	73.2	0.90	0.03	62.4	53.4	
21I24	21	I	24	15-46	7.33	5.5	SC-042	N	06/91	1.80	632.0	0.80	87.0	2.00	1.40	80.7	37.1	
21T13	21	T	13	0-15	7.95	5.91	SC-033	N	06/91	0.67	87.7	1.20	239.0	0.65	0.18	91.4	56.2	
21T13CS	21	T	13	0-23	8.04	0.85	SC-031	N	06/91	0.70	45.2	0.10 U	4.5	0.60 U	0.03	2.9	2.8	
21T13	21	T	13	15-46	7.48	5.08	SC-034	N	06/91	1.20	191.0	3.30	721.0	0.61	141.00	363.0	151.0	
21T13CS	21	T	13	23-46	7.91	4.06	SC-032	N	06/91	0.67	177.0	0.46	69.2	0.60 U	0.02	16.1	21.4	
21T19	21	T	19	0-15	7.75	8.39	SC-037	N	06/91	0.87	124.0	2.40	237.0	0.98	0.07	269.0	176.0	
21T19CS	21	T	19	0-23	8.02	0.98	SC-035	N -	06/91	0.69	43.6	0.10 U	3.7	0.60 U -	0.03	2.0	2.5	
21T19	21	T	19	15-46	6.97	7.34	SC-038	N	06/91	1.30	115.0	4.80	1690.0	0.60 U	1430.00	856.0	384.0	
21T19CS	21	T	19	23-46	7.95	5.03	SC-036	N	06/91	0.76	122.0	0.61	69.1	0.60 U	0.02	28.7	34.5	
27A17	27	A	17	0-15	7.61	4.87	SC-065	N	06/91	1.20	217.0	3.30	44.4	2.00 JB	32.30	23.6	63.1	
27A17	27	A	17	15-46	7.41	1.86	SC-066	N	06/91	0.87	137.0	1.20	8.5	0.60 UJB	15.20	9.0	67.6	
27A19	27	A	19	0-15	7.78	6.26	SC-067	N	06/91	2.00	313.0	1.50	56.3	3.40 JB	5.30	22.0	18.7	
27A19	27	A	19	15-46	7.52	5.14	SC-068	N	06/91	0.85	101.0	1.00	5.5	0.63 JB	1.60	15.2	63.9	
27C14	27	C	14	0-15	5.25	2.66	SC-061	N	06/91	1.50	409.0	7.40	164.0	1.60 JB	459.00	193.0	627.0	
27C14	27	C	14	15-46	5.88	2.53	SC-062	N	06/91	0.93	93.5	0.69	2.7	0.60 UJB	29.10	20.7	136.0	
27C21	27	C	21	0-15	5.32	0.7	SC-063	N	06/91	1.40	203.0	5.30	734.0	0.60 UJB	1480.00	337.0	597.0	
27C21	27	C	21	15-46	5.41	0.48	SC-064	N	06/91	1.00	128.0	4.60	152.0	0.60 UJB	121.00	204.0	406.0	
27D16	27	D	16	0-15	7.49	3.42	SC-051	N	06/91	2.20	152.0	2.30	30.5	2.10	17.60	11.2	76.1	
27D16	27	D	16	15-46	7.33	3.55	SC-053	N	06/91	1.90	120.0	1.00	5.1	1.70	5.20	5.7	59.2	
27D22	27	D	22	0-15	7.74	3.66	SC-055	N	06/91	2.70	190.0	1.00	6.6	2.60	3.60	6.9	16.9	
27D22	27	D	22	15-46	7.85	5.44	SC-056	N	06/91	1.20	98.0	0.38	1.9	0.88	2.20	2.1	5.6	
27X13	27	X	13	0-15	8.26	1.41	SC-057	N	06/91	7.70	452.0	1.30	45.7	7.60	7.90	19.0	10.6	
27X13	27	X	13	15-46	7.67	2.45	SC-058	N	06/91	1.80	133.0	0.79	2.8	1.50	2.90	12.1	41.9	
27X20	27	X	20	0-15	7.87	6.9	SC-059	N	06/91	11.90	408.0	1.40	157.0	16.70	28.70	37.8	36.7	
27X20	27	X	20	15-46	7.55	4.05	SC-060	N	06/91	2.30	208.0	1.30	14.7	2.30	11.60	24.1	79.9	

Extractable metals (ug/L) in amended tailings/soils from STARS Phase III field plots. 1991 data. Silver Bow Creek RI/FS.

Station Location	SITE	TRT	PLOT	Depth (cm)	pH	EC	SMO Number	Sample Type	Date Collected	Al	As	Cd	Cu	Fe	Pb	Mn	Zn	Comments
33A05	33	A	5	0-15	7.51	13.87	SC-077	N	06/91	1.50	29.6	1.20	174.0	0.80 JB	0.40	25.50	36.10	
33A05	33	A	5	15-46	7.05	6.54	SC-078	N	06/91	1.40	60.2	1.50	218.0	0.60 UJB	4.80	168.00	81.70	
33A07	33	A	7	0-15	7.8	9.53	SC-079	N	06/91	0.97	27.0	0.63	105.0	0.69 JB	0.35	19.00	22.10	
33A07	33	A	7	15-46	7.31	6.74	SC-080	N	06/91	1.80	44.0	1.10	133.0	0.79 JB	2.60	45.00	42.50	
33C04	33	C	4	0-15	3.8	5.41	SC-081	N	06/91	2.00 JB	112.0	1.00	231.0	3.50 JB	0.17	104.00	122.00	
33C04	33	C	4	15-46	4.7	4.92	SC-082	N	06/91	1.20 JB	57.7	2.10	319.0	0.92 JB	7.50	127.00	202.00	
33C12	33	C	12	0-15	4.22	6.45	SC-083	N	06/91	1.30 JB	63.6	2.30	401.0	0.81 JB	0.78	392.00	333.00	
33C12	33	C	12	15-46	4.34	4.86	SC-085	N	06/91	0.92 JB	69.2	1.60	296.0	0.58 JB	6.70	266.00	214.00	
33D02	33	D	2	0-15	8.22	1.7	SC-069	N	06/91	0.84	14.1	0.13	12.8	0.60 UJB	0.09	1.60	2.40	
33D02	33	D	2	15-46	7.6	5.74	SC-070	N	06/91	1.10	28.6	0.39	50.8	0.63 JB	0.29	15.60	8.70	
33D08	33	D	8	0-15	7.84	6.78	SC-071	N	06/91	1.20	37.8	0.62	80.0	1.00 JB	0.49	7.10	16.80	
33D08	33	D	8	15-46	7.72	6.99	SC-072	N	06/91	1.30	41.0	0.57	90.5	0.84 JB	0.88	10.70	16.50	
33I01	33	I	1	0-15	8.11	7.85	SC-073	N	06/91	1.10	20.8	0.12	21.3	1.00 JB	0.03	4.10	4.50	
33I01	33	I	1	15-46	7.36	5.27	SC-074	N	06/91	1.20	26.8	0.10	15.9	0.85 JB	0.02	10.30	4.10	
33I10	33	I	10	0-15	7.85	6.19	SC-075	N	06/91	1.10	26.1	0.32	60.5	0.60 UJB	0.07	10.30	14.40	
33I10	33	I	10	15-46	7.21	5.04	SC-076	N	06/91	1.20	52.1	0.43	93.0	0.60 UJB	0.95	31.10	15.20	
33T06	33	T	6	0-15	7.94	8.64	SC-089	N	06/91	0.75 UJB	33.8	0.52	56.6	0.90 JB	0.32	12.40	18.00	
33T06CS	33	T	6	0-23	8.03	0.62	SC-087	N	06/91	0.75 UJB	7.0	0.10 U	1.2	0.68 JB	0.04	1.20	1.00	
33T06	33	T	6	15-46	7.37	5.82	SC-090	N	06/91	0.75 UJB	40.1	1.20	132.0	0.83 JB	1.10	107.00	60.10	
33T06CS	33	T	6	23-46	7.9	3.6	SC-088	N	06/91	0.75 UJB	9.5	0.10 U	1.3	0.60 JB	0.05	0.76	0.68	
33T09	33	T	9	0-15	7.96	5.56	SC-093	N	06/91	0.83 JB	16.8	0.19	10.8	0.94 JB	0.02 U	6.90	5.10	
33T09CS	33	T	9	0-23	8.16	2.99	SC-091	N	06/91	0.75 UJB	7.7	0.10 U	0.6	0.37 JB	0.02	0.57	0.46	
33T09	33	T	9	15-46	7.87	4.19	SC-094	N	06/91	0.84 JB	26.7	0.27	18.3	0.66 JB	0.02 U	36.80	11.20	
33T09CS	33	T	9	23-46	8.02	4.33	SC-092	N	06/91	0.80 JB	7.6	0.10 U	1.4	0.76 JB	0.02	0.41	0.41	
07I22	7	I	22	0-15	8.9	2.39	SC-008	R	06/91	0.65 U	538.0	0.10 U	43.5	0.60 U	0.05	1.3	8.5	Field replicate
07I22	7	I	22	15-46	8.61	1.31	SC-010	R	06/91	0.65 U	319.0	0.20	39.2	0.60 U	0.19	5.4	11.5	Field replicate
21I24	21	I	24	0-15	8.06	7.13	SC-041	R	06/91	1.30	108.0	0.48	59.0	2.70	0.14	35.5	38.4	Field replicate
					7.76	5.84												
27D16	27	D	16	0-15	7.86	2.77	SC-052	R	06/91	2.10	134.0	1.20	15.6	1.70	5.70	8.2	32.3	Field replicate
27D16	27	D	16	15-46	7.55	3.22	SC-054	R	06/91	1.90	105.0	1.50	8.9	1.00	4.20	8.5	71.7	Field replicate
33C12	33	C	12	0-15	4.18	7.36	SC-084	R	06/91	1.20 JB	68.3	2.00	374.0	1.10 JB	0.58	371.00	310.00	Field replicate
33C12	33	C	12	15-46	4.6	4.75	SC-086	R	06/91	1.20 JB	56.5	1.50	242.0	0.94 JB	0.36	244.00	204.00	Field replicate

APPENDIX B3

PORE WATER CHEMISTRY
1990
1991
1992

CATION ACTIVITY VERSUS pH GRAPHS (1992)

STARS
SOIL SATURATED PASTE EXTRACT pH AND EC VALUES - 1990

Site	Treatment	Plot	Depth (cm)	Core	Sample Type	pH	SC (micromhos)
2	A	2	0-8	D	N	7.79	15.63
2	A	8	0-8	D	N	7.54	6.58
2	A	14	0-8	D	N	6.73	2.80
2	A	22	0-8	D	N	7.97	6.25
2	A	2	8-15	D	N	7.32	11.03
2	A	8	8-15	D	N	8.25	4.80
2	A	14	8-15	D	N	6.82	3.48
2	A	22	8-15	D	N	8.03	4.78
2	A	2	15-30	D	N	6.21	18.76
2	A	8	15-30	D	N	6.90	9.13
2	A	14	15-30	D	N	6.00	3.00
2	A	22	15-30	D	N	3.74	3.88
2	A	2	30-60	D	N	3.60	21.24
2	A	8	30-60	D	N	4.94	12.03
2	A	14	30-60	D	N	6.08	3.25
2	A	22	30-60	D	N	4.52	3.96
2	A	2	60-90	D	N	4.61	19.28
2	A	8	60-90	D	N	4.78	9.81
2	A	22	60-90	D	N	5.02	5.47
2	A	2	90-120	D	N	5.70	15.63
2	A	8	90-120	D	N	5.21	10.82
2	A	22	90-120	D	N	5.07	3.98
2	C	4	0-8	D	N	4.97	11.61
2	C	12	0-8	D	N	4.87	10.96
2	C	15	0-8	D	N	5.88	3.67
2	C	20	0-8	D	N	4.39	0.91
2	C	4	8-15	D	N	3.80	8.95
2	C	12	8-15	D	N	4.11	11.27
2	C	15	8-15	D	N	6.09	3.53
2	C	20	8-15	D	N	2.98	0.78
2	C	4	15-30	D	N	3.54	7.60
2	C	12	15-30	D	N	3.77	13.06
2	C	15	15-30	D	N	5.15	3.30
2	C	20	15-30	D	N	3.27	0.94
2	C	4	30-60	D	N	3.89	7.35
2	C	12	30-60	D	N	4.71	3.79
2	C	15	30-60	D	N	6.07	3.48
2	C	20	30-60	D	N	4.48	1.21
2	C	4	60-90	D	N	3.70	8.14
2	C	12	60-90	D	N	5.32	4.45
2	C	20	60-90	D	N	5.15	0.96
2	C	4	90-120	D	N	4.48	6.96
2	C	12	90-120	D	N	5.52	4.14
2	C	20	90-120	D	N	6.00	0.08
2	C	4	120-150	D	N	5.06	4.39
2	C	12	120-150	D	N	5.92	3.48
2	C	20	120-150	D	N	5.76	0.05
2	C	12	150-180	D	N	5.77	4.02
2	C	20	150-180	D	N	5.85	0.06
2	D	6	0-8	A	N	6.67	5.99
2	D	6	0-8	C	N	7.17	0.00
2	D	6	0-8	B	N	0.00	0.00
2	D	10	0-8	B	N	0.00	5.64
2	D	10	0-8	C	N	7.26	2.71
2	D	10	0-8	A	N	6.67	0.00
2	D	16	0-8	C	N	6.53	4.94
2	D	16	0-8	A	N	6.93	3.24
2	D	16	0-8	B	N	7.04	3.69
2	D	24	0-8	A	N	7.23	5.78
2	D	24	0-8	C	N	0.00	0.00
2	D	24	0-8	B	N	0.00	7.39
2	D	6	8-15	A	N	12.13	6.70
2	D	6	8-15	B	N	5.89	0.00
2	D	6	8-15	C	N	7.61	0.21
2	D	10	8-15	B	N	7.41	0.00
2	D	10	8-15	A	N	7.38	3.91
2	D	10	8-15	C	N	7.35	4.08
2	D	16	8-15	C	N	6.91	2.38

2	D	16	8-15	B	N	11.56	4.79
2	D	16	8-15	A	N	6.39	3.67
2	D	24	8-15	A	N	0.00	0.00
2	D	24	8-15	C	N	7.79	0.00
2	D	24	8-15	B	N	6.56	0.00
2	D	6	15-30	B	N	7.01	2.80
2	D	6	15-30	C	N	7.82	1.28
2	D	6	15-30	A	N	11.86	3.38
2	D	10	15-30	A	N	7.68	3.84
2	D	10	15-30	B	N	10.10	2.18
2	D	10	15-30	C	N	7.77	3.32
2	D	16	15-30	C	N	7.20	3.19
2	D	16	15-30	A	N	6.37	4.35
2	D	16	15-30	B	N	9.20	4.22
2	D	24	15-30	C	N	7.80	5.57
2	D	24	15-30	B	N	7.40	3.08
2	D	24	15-30	A	N	0.00	4.20
2	D	6	30-60	B	N	5.71	4.01
2	D	6	30-60	C	N	5.92	4.90
2	D	6	30-60	A	N	7.71	3.86
2	D	10	30-60	A	N	6.44	5.93
2	D	10	30-60	C	N	6.48	4.86
2	D	10	30-60	B	N	7.87	1.38
2	D	16	30-60	B	N	6.08	4.76
2	D	16	30-60	C	N	6.69	3.30
2	D	16	30-60	A	N	7.13	6.39
2	D	24	30-60	A	N	5.43	3.74
2	D	24	30-60	B	N	7.41	3.53
2	D	24	30-60	C	N	6.90	3.34
2	D	6	60-90	A	N	5.99	6.51
2	D	6	60-90	C	N	4.30	6.30
2	D	6	60-90	B	N	6.01	3.64
2	D	10	60-90	C	N	6.28	1.48
2	D	10	60-90	B	N	7.59	0.29
2	D	10	60-90	A	N	6.34	2.83
2	D	16	60-90	B	N	6.79	5.09
2	D	16	60-90	C	N	7.09	3.50
2	D	16	60-90	A	N	6.49	3.85
2	D	24	60-90	A	N	5.98	3.67
2	D	24	60-90	C	N	7.92	5.08
2	D	6	90-120	C	N	4.74	6.16
2	D	6	90-120	A	N	7.24	4.26
2	D	6	90-120	B	N	2.11	4.76
2	D	10	90-120	C	N	7.36	2.61
2	D	10	90-120	A	N	6.35	3.91
2	D	10	90-120	B	N	6.31	0.53
2	D	16	90-120	A	N	6.33	3.56
2	D	16	90-120	C	N	6.58	2.91
2	D	24	90-120	A	N	6.30	4.96
2	D	6	120-150	C	N	5.76	0.00
2	D	6	120-150	A	N	6.06	4.71
2	D	10	120-150	C	N	6.18	5.45
2	D	10	120-150	A	N	0.00	3.38
2	D	10	120-150	B	N	6.44	4.55
2	D	24	120-150	A	N	6.20	3.84
2	D	6	150-180	A	N	0.00	5.90
2	D	10	150-180	A	N	7.09	2.45
2	D	10	150-180	C	N	6.53	2.31
2	D	10	150-180	B	N	6.04	2.61
2	D	24	150-180	A	N	6.16	3.61
2	I	3	0-8	B	N	0.00	0.00
2	I	3	0-8	C	N	7.97	0.00
2	I	3	0-8	A	N	7.82	0.00
2	I	11	0-8	A	N	7.78	8.11
2	I	11	0-8	C	N	0.00	5.00
2	I	11	0-8	B	N	8.33	0.30
2	I	13	0-8	C	N	6.87	2.03
2	I	13	0-8	A	N	6.92	5.48
2	I	13	0-8	B	N	6.95	6.32
2	I	23	0-8	B	N	8.07	13.89
2	I	23	0-8	C	N	7.81	0.00
2	I	23	0-8	A	N	0.00	0.00
2	I	3	8-15	C	N	7.77	11.38
2	I	3	8-15	B	N	0.00	0.00
2	I	3	8-15	A	N	7.67	9.29
2	I	11	8-15	A	N	7.53	8.13
2	I	11	8-15	C	N	7.62	8.06
2	I	11	8-15	B	N	0.00	0.00
2	I	13	8-15	B	N	7.36	5.06

2	I	13	8-15	C	N	7.17	3.79
2	I	13	8-15	A	N	7.19	4.79
2	I	23	8-15	C	N	8.25	0.00
2	I	23	8-15	B	N	8.11	7.36
2	I	23	8-15	A	N	8.14	0.00
2	I	3	15-30	C	N	3.60	14.67
2	I	3	15-30	A	N	4.33	13.20
2	I	3	15-30	B	N	6.77	8.70
2	I	11	15-30	A	N	7.88	8.79
2	I	11	15-30	B	N	6.42	0.26
2	I	11	15-30	C	N	7.44	10.98
2	I	13	15-30	A	N	5.75	4.48
2	I	13	15-30	B	N	6.48	6.50
2	I	13	15-30	C	N	5.74	4.49
2	I	23	15-30	B	N	6.76	6.65
2	I	23	15-30	C	N	7.06	9.76
2	I	23	15-30	A	N	5.23	13.22
2	I	3	30-60	A	N	5.00	16.54
2	I	3	30-60	C	N	4.48	17.72
2	I	3	30-60	B	N	4.89	15.28
2	I	11	30-60	C	N	4.28	8.73
2	I	11	30-60	A	N	6.76	7.90
2	I	11	30-60	B	N	4.68	0.22
2	I	13	30-60	B	N	6.51	3.48
2	I	13	30-60	A	N	6.55	2.29
2	I	13	30-60	C	N	4.89	5.12
2	I	23	30-60	A	N	5.04	9.82
2	I	23	30-60	C	N	5.43	7.44
2	I	23	30-60	B	N	5.64	7.18
2	I	3	60-90	A	N	6.19	9.33
2	I	3	60-90	C	N	5.97	10.03
2	I	3	60-90	B	N	6.13	9.32
2	I	11	60-90	C	N	5.44	2.79
2	I	11	60-90	B	N	0.00	4.98
2	I	11	60-90	A	N	6.14	5.94
2	I	13	60-90	B	N	4.36	3.99
2	I	13	60-90	C	N	6.30	5.83
2	I	13	60-90	A	N	5.71	2.18
2	I	23	60-90	A	N	6.43	5.58
2	I	23	60-90	B	N	6.50	4.61
2	I	23	60-90	C	N	6.37	5.44
2	I	3	90-120	A	N	5.79	9.98
2	I	3	90-120	C	N	6.26	9.38
2	I	11	90-120	A	N	7.79	7.02
2	I	11	90-120	C	N	5.95	5.10
2	I	11	90-120	B	N	6.15	6.59
2	I	13	90-120	C	N	5.58	5.45
2	I	13	90-120	A	N	6.35	1.24
2	I	13	90-120	B	N	6.10	2.56
2	I	23	90-120	B	N	6.25	2.92
2	I	23	90-120	A	N	5.96	4.70
2	I	23	90-120	C	N	6.64	3.58
2	I	3	120-150	C	N	5.84	8.86
2	I	3	120-150	A	N	5.96	7.62
2	I	11	120-150	C	N	6.25	8.40
2	I	11	120-150	A	N	6.38	4.74
2	I	11	120-150	B	N	6.51	5.57
2	I	23	120-150	B	N	6.99	4.78
2	I	23	120-150	C	N	7.43	7.62
2	I	23	120-150	A	N	6.47	4.73
2	I	11	150-180	B	N	6.76	3.32
2	I	11	150-180	C	N	7.12	8.20
2	I	11	150-180	A	N	7.30	3.68
2	I	23	150-180	A	N	5.72	2.09
2	I	23	150-180	B	N	6.71	2.29
2	I	23	150-180	C	N	6.93	3.15
2	T	1	0-8	D	N	7.81	2.99
2	T	7	0-8	D	N	0.00	0.00
2	T	18	0-8	D	N	7.63	6.31
2	T	19	0-8	D	N	7.32	3.30
2	T	1	8-15	D	N	7.20	3.49
2	T	7	8-15	D	N	7.64	1.14
2	T	18	8-15	D	N	7.05	3.20
2	T	19	8-15	D	N	7.17	3.50
2	T	1	15-30	D	N	7.77	3.13
2	T	7	15-30	D	N	5.86	4.29
2	T	18	15-30	D	N	6.98	2.47
2	T	19	15-30	D	N	4.71	2.68
2	T	1	30-60	D	N	4.01	3.89

2	T	7	30-60	D	N	5.12	6.17
2	T	18	30-60	D	N	6.17	3.73
2	T	19	30-60	D	N	4.66	1.81
2	T	1	60-90	D	N	4.34	4.70
2	T	7	60-90	D	N	5.33	5.19
2	T	19	60-90	D	N	5.04	2.06
2	T	1	90-120	D	N	5.30	3.61
2	T	7	90-120	D	N	5.28	4.40
2	T	19	90-120	D	N	5.29	2.27
2	T	1	0-30CS	D	N	8.00	4.22
2	T	7	0-30CS	D	N	7.44	3.91
2	T	18	0-30CS	D	N	7.60	3.74
2	T	19	0-30CS	D	N	7.73	4.80
2	T	1	30-60CS	D	N	7.90	3.49
2	T	7	30-60CS	D	N	7.86	3.53
2	T	18	30-60CS	D	N	7.64	3.86
2	T	19	30-60CS	D	N	7.84	6.39
2	T	1	60-90CS	D	N	8.06	3.79
2	T	7	60-90CS	D	N	8.12	0.20
2	T	18	60-90CS	D	N	7.68	3.71
2	T	19	60-90CS	D	N	7.73	6.81
2	X	5	0-8	D	N	7.77	15.59
2	X	9	0-8	D	N	7.28	4.52
2	X	17	0-8	D	N	7.56	3.44
2	X	21	0-8	D	N	8.14	0.00
2	X	5	8-15	D	N	6.79	9.51
2	X	9	8-15	D	N	7.89	3.98
2	X	17	8-15	D	N	7.73	3.90
2	X	21	8-15	D	N	7.24	14.68
2	X	5	15-30	D	N	3.34	8.65
2	X	9	15-30	D	N	6.69	12.17
2	X	17	15-30	D	N	7.13	4.00
2	X	21	15-30	D	N	5.25	14.82
2	X	5	30-60	D	N	3.52	9.01
2	X	9	30-60	D	N	5.04	0.00
2	X	17	30-60	D	N	6.58	3.82
2	X	21	30-60	D	N	4.07	13.63
2	X	5	60-90	D	N	3.46	5.78
2	X	9	60-90	D	N	5.80	13.12
2	X	21	60-90	D	N	5.49	13.29
2	X	5	90-120	D	N	4.21	5.81
2	X	9	90-120	D	N	6.03	10.92
2	X	21	90-120	D	N	6.00	7.77
7	A	1	0-8	D	N	7.90	4.52
7	A	10	0-8	D	N	8.14	1.18
7	A	16	0-8	D	N	7.90	0.19
7	A	23	0-8	D	N	8.45	3.99
7	A	1	8-15	D	N	8.07	4.11
7	A	10	8-15	D	N	7.60	3.58
7	A	16	8-15	D	N	7.37	0.26
7	A	23	8-15	D	N	8.28	0.72
7	A	1	15-30	D	N	5.74	4.08
7	A	10	15-30	D	N	4.73	1.95
7	A	16	15-30	D	N	5.51	0.02
7	A	23	15-30	D	N	5.19	0.53
7	A	1	30-60	D	N	5.01	3.70
7	A	10	30-60	D	N	4.61	2.37
7	A	16	30-60	D	N	3.63	2.20
7	A	23	30-60	D	N	4.18	0.45
7	A	1	60-90	D	N	5.02	2.04
7	A	10	60-90	D	N	7.79	4.18
7	A	16	60-90	D	N	2.84	5.10
7	A	23	60-90	D	N	5.04	0.93
7	A	1	90-120	D	N	5.22	3.48
7	A	10	90-120	D	N	7.83	3.49
7	A	16	90-120	D	N	6.15	4.19
7	A	23	90-120	D	N	7.48	2.11
7	C	2	0-8	D	N	4.12	1.91
7	C	11	0-8	D	N	4.95	1.36
7	C	17	0-8	D	N	5.50	0.13
7	C	21	0-8	D	N	6.15	0.00
7	C	2	8-15	D	N	4.10	0.90
7	C	11	8-15	D	N	5.92	1.46
7	C	17	8-15	D	N	6.87	1.11
7	C	21	8-15	D	N	6.20	0.28
7	C	2	15-30	D	N	4.02	1.22
7	C	11	15-30	D	N	7.34	2.30
7	C	17	15-30	D	N	7.70	0.02
7	C	21	15-30	D	N	4.67	1.10

7	C	11	30-60	D	N	7.62	2.58
7	C	17	30-60	D	N	4.13	3.11
7	C	21	30-60	D	N	4.66	0.29
7	C	11	30-60	D	N	7.03	2.02
7	C	17	30-60	D	N	4.30	2.54
7	C	21	30-60	D	N	4.28	0.37
7	C	17	90-120	D	N	6.35	1.81
7	C	17	120-150	D	N	6.75	2.91
7	C	17	150-180	D	N	6.87	2.02
7	D	3	0-8	B	N	7.68	4.05
7	D	3	0-8	C	N	8.05	4.21
7	D	3	0-8	A	N	8.01	0.00
7	D	9	0-8	C	N	8.31	4.91
7	D	9	0-8	A	N	8.69	1.79
7	D	9	0-8	B	N	8.56	2.38
7	D	14	0-8	B	N	8.36	0.00
7	D	14	0-8	A	N	7.91	0.00
7	D	14	0-8	C	N	8.03	0.61
7	D	20	0-8	B	N	8.19	0.00
7	D	20	0-8	A	N	7.98	2.44
7	D	20	0-8	C	N	8.51	1.46
7	D	3	8-15	C	N	8.22	5.24
7	D	3	8-15	B	N	7.96	0.00
7	D	3	8-15	A	N	4.78	0.79
7	D	9	8-15	C	N	8.01	6.46
7	D	9	8-15	A	N	8.06	5.04
7	D	9	8-15	B	N	7.94	2.36
7	D	14	8-15	A	N	7.74	1.11
7	D	14	8-15	C	N	7.96	0.84
7	D	14	8-15	B	N	8.21	0.00
7	D	20	8-15	B	N	5.49	1.90
7	D	20	8-15	C	N	8.25	2.40
7	D	20	8-15	A	N	4.11	1.18
7	D	3	15-30	B	N	4.64	3.13
7	D	3	15-30	A	N	4.45	1.54
7	D	3	15-30	C	N	7.97	5.13
7	D	9	15-30	A	N	7.62	5.16
7	D	9	15-30	B	N	7.93	5.28
7	D	9	15-30	C	N	6.12	3.78
7	D	14	15-30	A	N	5.39	0.94
7	D	14	15-30	C	N	6.86	1.72
7	D	14	15-30	B	N	5.39	0.45
7	D	20	15-30	A	N	3.79	0.89
7	D	20	15-30	B	N	3.89	0.75
7	D	20	15-30	C	N	7.93	3.53
7	D	3	30-60	B	N	6.65	2.30
7	D	3	30-60	C	N	7.90	3.83
7	D	9	30-60	B	N	7.81	3.81
7	D	9	30-60	C	N	7.54	4.47
7	D	9	30-60	A	N	7.71	4.15
7	D	14	30-60	C	N	5.69	0.25
7	D	14	30-60	B	N	5.13	0.25
7	D	14	30-60	A	N	6.25	0.44
7	D	20	30-60	B	N	6.13	3.66
7	D	20	30-60	A	N	4.55	1.36
7	D	20	30-60	C	N	5.22	3.21
7	D	3	60-90	B	N	8.90	1.98
7	D	9	60-90	A	N	7.66	3.35
7	D	9	60-90	B	N	7.77	4.18
7	D	9	60-90	C	N	5.60	3.34
7	D	14	60-90	A	N	7.70	1.11
7	D	14	60-90	C	N	6.61	2.25
7	D	20	60-90	C	N	5.78	1.96
7	D	20	60-90	B	N	5.17	1.81
7	D	9	90-120	A	N	7.39	2.82
7	D	14	90-120	C	N	7.93	1.35
7	D	14	90-120	A	N	6.52	2.80
7	D	20	90-120	C	N	5.83	1.35
7	D	14	120-150	C	N	7.31	2.39
7	D	14	150-180	C	N	6.33	3.28
7	I	5	0-8	B	N	8.39	3.44
7	I	5	0-8	A	N	8.28	5.60
7	I	5	0-8	C	N	8.52	1.69
7	I	8	0-8	C	N	9.05	2.37
7	I	8	0-8	B	N	9.21	2.36
7	I	8	0-8	A	N	9.01	2.61
7	I	18	0-8	B	N	8.71	0.79
7	I	18	0-8	C	N	8.31	0.66
7	I	18	0-8	A	N	8.46	4.50

7	I	22	0-8	B	N	8.49	0.55
7	I	22	0-8	C	N	5.15	0.35
7	I	22	0-8	A	N	8.68	0.79
7	I	5	8-15	C	N	8.18	5.97
7	I	5	8-15	A	N	8.31	4.05
7	I	5	8-15	B	N	8.08	5.80
7	I	8	8-15	C	N	8.20	0.00
7	I	8	8-15	A	N	7.68	0.00
7	I	8	8-15	B	N	8.50	3.80
7	I	18	8-15	A	N	8.95	1.05
7	I	18	8-15	B	N	7.66	0.37
7	I	18	8-15	C	N	8.43	0.53
7	I	22	8-15	C	N	7.38	3.65
7	I	22	8-15	B	N	8.05	4.01
7	I	22	8-15	A	N	8.29	1.10
7	I	5	15-30	A	N	5.17	2.72
7	I	5	15-30	B	N	6.49	4.67
7	I	5	15-30	C	N	6.13	6.14
7	I	8	15-30	A	N	8.00	6.86
7	I	8	15-30	B	N	7.66	3.84
7	I	8	15-30	C	N	7.74	7.10
7	I	18	15-30	C	N	8.00	1.07
7	I	18	15-30	A	N	6.92	1.40
7	I	18	15-30	B	N	7.12	0.95
7	I	22	15-30	B	N	7.84	1.00
7	I	22	15-30	C	N	4.77	0.72
7	I	22	15-30	A	N	7.42	6.45
7	I	5	30-60	A	N	7.40	4.07
7	I	5	30-60	C	N	4.00	4.43
7	I	5	30-60	B	N	7.09	4.68
7	I	8	30-60	C	N	7.79	4.02
7	I	8	30-60	A	N	7.54	5.40
7	I	8	30-60	B	N	8.03	6.99
7	I	18	30-60	C	N	4.34	0.83
7	I	18	30-60	B	N	5.16	2.82
7	I	18	30-60	A	N	7.47	4.19
7	I	22	30-60	B	N	4.43	1.20
7	I	22	30-60	C	N	8.18	1.10
7	I	22	30-60	A	N	4.86	0.86
7	I	8	60-90	A	N	7.63	3.68
7	I	8	60-90	B	N	8.02	4.12
7	I	8	60-90	C	N	7.52	4.18
7	I	18	60-90	B	N	7.55	2.95
7	I	18	60-90	A	N	7.40	3.11
7	I	18	60-90	C	N	6.41	2.77
7	I	22	60-90	B	N	7.97	4.93
7	I	22	60-90	A	N	3.79	1.17
7	I	22	60-90	C	N	6.36	1.39
7	I	8	90-120	C	N	7.62	0.00
7	I	8	90-120	A	N	7.86	5.16
7	I	8	90-120	B	N	7.84	4.02
7	I	18	90-120	C	N	7.11	2.85
7	I	18	90-120	A	N	7.72	2.96
7	I	22	90-120	A	N	7.49	1.46
7	I	18	120-150	A	N	6.96	2.05
7	I	18	150-180	A	N	7.37	2.13
7	T	12	0-8	D	N	8.06	1.54
7	T	13	0-8	D	N	7.99	3.76
7	T	19	0-8	D	N	8.01	5.59
7	T	12	8-15	D	N	8.10	1.56
7	T	13	8-15	D	N	7.98	3.50
7	T	19	8-15	D	N	7.83	5.81
7	T	12	15-30	D	N	7.80	2.34
7	T	13	15-30	D	N	7.36	2.93
7	T	19	15-30	D	N	7.81	4.17
7	T	12	30-60	D	N	5.63	1.10
7	T	13	30-60	D	N	7.09	2.60
7	T	19	30-60	D	N	4.86	4.54
7	T	13	60-90	D	N	7.09	3.11
7	T	19	60-90	D	N	4.99	5.35
7	T	13	90-120	D	N	7.60	3.35
7	T	6	0-30CS	D	N	8.48	0.97
7	T	12	0-30CS	D	N	8.13	0.71
7	T	13	0-30CS	D	N	8.37	0.48
7	T	19	0-30CS	D	N	8.14	0.51
7	T	6	30-60CS	D	N	8.25	1.70
7	T	12	30-60CS	D	N	8.25	0.88
7	T	13	30-60CS	D	N	8.37	0.55
7	T	19	30-60CS	D	N	7.86	3.50

7	T	6	60-90CS	D	N	8.19	0.00
7	T	12	60-90CS	D	N	8.08	1.98
7	T	13	60-90CS	D	N	8.20	1.46
7	T	19	60-90CS	D	N	7.91	4.05
21	A	5	0-8	D	N	7.88	6.09
21	A	9	0-8	D	N	7.94	6.23
21	A	15	0-8	C	N	7.92	9.58
21	A	23	0-8	D	N	7.96	6.95
21	A	5	8-15	D	N	7.64	5.99
21	A	9	8-15	D	N	7.90	5.89
21	A	15	8-15	C	N	7.96	7.86
21	A	23	8-15	D	N	7.74	7.88
21	A	5	15-30	D	N	6.73	7.06
21	A	9	15-30	D	N	6.85	6.58
21	A	15	15-30	C	N	7.65	7.99
21	A	23	15-30	D	N	6.72	6.18
21	A	5	30-60	D	N	7.57	4.77
21	A	9	30-60	D	N	6.92	6.66
21	A	15	30-60	C	N	7.44	3.62
21	A	23	30-60	D	N	6.17	5.01
21	A	5	60-90	D	N	7.70	4.21
21	A	9	60-90	D	N	7.85	4.48
21	A	15	60-90	C	N	7.99	1.53
21	A	23	60-90	D	N	7.20	3.04
21	A	5	90-120	D	N	8.09	1.80
21	A	9	90-120	D	N	7.98	2.27
21	A	15	90-120	C	N	8.12	0.87
21	A	23	90-120	D	N	7.54	2.46
21	A	9	120-150	D	N	6.96	7.16
21	C	6	0-8	D	N	6.51	7.66
21	C	10	0-8	D	N	4.43	12.27
21	C	18	0-8	D	N	4.56	7.33
21	C	20	0-8	D	N	4.62	11.01
21	C	6	8-15	D	N	5.23	6.22
21	C	10	8-15	D	N	6.43	10.26
21	C	18	8-15	D	N	4.50	5.88
21	C	20	8-15	D	N	3.98	10.65
21	C	6	15-30	D	N	7.02	5.31
21	C	10	15-30	D	N	4.17	11.40
21	C	18	15-30	D	N	6.74	4.35
21	C	20	15-30	D	N	6.24	9.38
21	C	6	30-60	D	N	6.99	4.25
21	C	10	30-60	D	N	6.46	9.46
21	C	18	30-60	D	N	6.70	5.86
21	C	20	30-60	D	N	6.79	5.97
21	C	6	60-90	D	N	7.70	3.39
21	C	10	60-90	D	N	7.55	7.32
21	C	18	60-90	D	N	7.58	3.32
21	C	20	60-90	D	N	7.56	3.58
21	C	6	60-90	D	N	7.93	3.21
21	C	10	60-90	D	N	7.60	5.76
21	C	18	60-90	D	N	7.88	2.94
21	C	20	60-90	D	N	7.60	3.18
21	C	6	120-150	D	N	8.09	1.20
21	C	10	120-150	D	N	8.48	0.00
21	C	18	120-150	D	N	5.95	3.06
21	C	20	120-150	D	N	7.65	2.52
21	C	6	150-180	D	N	7.64	3.84
21	C	10	150-180	D	N	7.63	7.45
21	C	18	150-180	D	N	7.60	3.34
21	C	20	150-180	D	N	7.54	4.00
21	D	2	0-8	A	N	6.50	0.00
21	D	2	0-8	C	N	7.61	0.00
21	D	2	0-8	B	N	7.62	5.98
21	D	7	0-8	B	N	7.94	0.00
21	D	7	0-8	C	N	7.89	0.00
21	D	7	0-8	A	N	7.92	7.72
21	D	17	0-8	A	N	7.72	0.00
21	D	17	0-8	C	N	5.53	0.00
21	D	17	0-8	B	N	7.82	5.95
21	D	21	0-8	C	N	7.81	9.57
21	D	21	0-8	A	N	7.45	11.24
21	D	21	0-8	B	N	7.85	8.18
21	D	2	8-15	B	N	8.12	8.69
21	D	2	8-15	A	N	6.58	4.82
21	D	2	8-15	C	N	6.81	4.59
21	D	7	8-15	A	N	7.71	6.86
21	D	7	8-15	C	N	0.00	0.00
21	D	7	8-15	B	N	7.01	0.00

21	D	17	8-15	A	N	7.74	0.00
21	D	17	8-15	C	N	7.65	6.23
21	D	17	8-15	B	N	7.20	6.85
21	D	21	8-15	A	N	7.52	6.37
21	D	21	8-15	C	N	7.87	0.00
21	D	21	8-15	B	N	0.00	0.00
21	D	2	15-30	C	N	7.17	4.82
21	D	2	15-30	A	N	6.59	4.43
21	D	2	15-30	B	N	6.89	7.42
21	D	7	15-30	A	N	7.70	6.92
21	D	7	15-30	B	N	7.39	6.66
21	D	7	15-30	C	N	7.76	0.00
21	D	17	15-30	C	N	7.71	5.33
21	D	17	15-30	B	N	7.20	4.72
21	D	17	15-30	A	N	7.68	8.55
21	D	21	15-30	B	N	8.02	13.28
21	D	21	15-30	C	N	7.04	5.25
21	D	21	15-30	A	N	7.56	4.20
21	D	2	30-60	A	N	6.54	4.64
21	D	2	30-60	C	N	6.83	4.52
21	D	2	30-60	B	N	5.82	4.52
21	D	7	30-60	C	N	7.96	6.94
21	D	7	30-60	B	N	7.38	4.82
21	D	7	30-60	A	N	6.35	1.92
21	D	17	30-60	A	N	7.71	10.72
21	D	17	30-60	C	N	7.51	4.04
21	D	17	30-60	B	N	7.47	4.55
21	D	21	30-60	C	N	7.02	4.62
21	D	21	30-60	A	N	7.14	8.40
21	D	21	30-60	B	N	6.85	10.45
21	D	2	60-90	B	N	6.20	4.50
21	D	2	60-90	C	N	6.82	4.56
21	D	2	60-90	A	N	6.61	5.61
21	D	7	60-90	B	N	7.58	3.81
21	D	7	60-90	C	N	7.10	3.81
21	D	7	60-90	A	N	6.86	3.95
21	D	17	60-90	C	N	6.76	4.71
21	D	17	60-90	B	N	7.73	3.48
21	D	17	60-90	A	N	7.76	7.26
21	D	21	60-90	B	N	6.63	8.10
21	D	21	60-90	A	N	7.95	5.53
21	D	21	60-90	C	N	7.61	4.67
21	D	2	90-120	C	N	7.13	3.35
21	D	2	90-120	B	N	6.56	3.70
21	D	2	90-120	A	N	6.63	4.81
21	D	7	90-120	C	N	7.76	3.21
21	D	7	90-120	B	N	7.80	3.15
21	D	7	90-120	A	N	7.78	3.58
21	D	17	90-120	B	N	7.96	2.21
21	D	17	90-120	C	N	7.10	4.00
21	D	17	90-120	A	N	7.16	5.83
21	D	21	90-120	C	N	7.21	5.12
21	D	21	90-120	A	N	7.68	7.19
21	D	21	90-120	B	N	6.99	6.79
21	D	2	120-150	C	N	6.64	4.00
21	D	2	120-150	A	N	7.18	3.55
21	D	2	120-150	B	N	7.08	2.77
21	D	7	120-150	A	N	7.94	1.92
21	D	7	120-150	C	N	7.73	3.67
21	D	7	120-150	B	N	7.58	0.00
21	D	17	120-150	B	N	8.13	1.15
21	D	17	120-150	A	N	7.83	3.65
21	D	17	120-150	C	N	7.79	3.20
21	D	21	120-150	A	N	7.94	5.04
21	D	21	120-150	C	N	7.90	4.34
21	D	21	120-150	B	N	7.95	7.00
21	D	2	150-180	B	N	7.48	3.50
21	D	2	150-180	C	N	7.55	3.40
21	D	7	150-180	C	N	7.71	3.35
21	D	7	150-180	A	N	7.94	3.52
21	D	7	150-180	B	N	7.72	3.27
21	D	17	150-180	A	N	8.07	2.93
21	D	17	150-180	B	N	8.05	3.39
21	D	17	150-180	C	N	8.01	2.77
21	D	21	150-180	C	N	7.80	0.00
21	D	21	150-180	A	N	7.87	5.34
21	D	21	150-180	B	N	7.87	8.29
21	I	4	0-8	C	N	6.80	0.00
21	I	4	0-8	B	N	7.66	6.91

21	I	4	0-8	A	N	8.12	8.51
21	I	11	0-8	B	N	8.08	0.00
21	I	11	0-8	A	N	8.43	8.22
21	I	11	0-8	C	N	7.81	11.55
21	I	14	0-8	B	N	8.62	12.01
21	I	14	0-8	A	N	7.29	0.00
21	I	14	0-8	C	N	8.10	7.72
21	I	24	0-8	A	N	7.82	0.00
21	I	24	0-8	B	N	8.23	10.59
21	I	24	0-8	C	N	8.07	7.26
21	I	4	8-15	A	N	8.10	0.00
21	I	4	8-15	B	N	8.09	7.96
21	I	4	8-15	C	N	7.95	0.00
21	I	11	8-15	B	N	8.28	8.25
21	I	11	8-15	A	N	5.48	6.44
21	I	11	8-15	C	N	7.65	5.14
21	I	14	8-15	A	N	6.48	0.00
21	I	14	8-15	C	N	7.67	6.14
21	I	14	8-15	B	N	7.88	7.18
21	I	24	8-15	B	N	7.98	8.98
21	I	24	8-15	C	N	7.92	4.50
21	I	24	8-15	A	N	7.91	8.30
21	I	4	15-30	C	N	7.71	5.24
21	I	4	15-30	A	N	7.57	7.97
21	I	4	15-30	B	N	7.54	7.22
21	I	11	15-30	A	N	6.98	4.69
21	I	11	15-30	C	N	6.47	4.93
21	I	11	15-30	B	N	4.99	6.99
21	I	14	15-30	C	N	7.74	7.08
21	I	14	15-30	A	N	7.55	9.82
21	I	14	15-30	B	N	6.96	7.94
21	I	24	15-30	A	N	5.03	5.66
21	I	24	15-30	B	N	6.11	5.09
21	I	24	15-30	C	N	6.24	5.35
21	I	4	30-60	B	N	7.49	4.74
21	I	4	30-60	C	N	7.66	3.93
21	I	4	30-60	A	N	7.22	5.65
21	I	11	30-60	B	N	8.01	6.89
21	I	11	30-60	A	N	7.83	3.12
21	I	11	30-60	C	N	7.26	4.02
21	I	14	30-60	A	N	7.94	6.66
21	I	14	30-60	B	N	7.00	7.32
21	I	14	30-60	C	N	7.20	7.01
21	I	24	30-60	C	N	6.83	5.05
21	I	24	30-60	B	N	7.43	5.17
21	I	24	30-60	A	N	7.18	4.23
21	I	4	60-90	C	N	7.64	1.65
21	I	4	60-90	A	N	7.65	3.26
21	I	4	60-90	B	N	8.43	2.09
21	I	11	60-90	B	N	8.14	3.09
21	I	11	60-90	A	N	8.05	1.09
21	I	11	60-90	C	N	7.77	1.91
21	I	14	60-90	A	N	7.81	5.42
21	I	14	60-90	C	N	7.86	6.26
21	I	14	60-90	B	N	7.80	5.53
21	I	24	60-90	B	N	6.68	4.11
21	I	24	60-90	A	N	7.36	4.21
21	I	24	60-90	C	N	7.48	3.51
21	I	4	90-120	B	N	8.32	0.77
21	I	4	90-120	C	N	8.14	0.96
21	I	4	90-120	A	N	7.97	1.23
21	I	11	90-120	C	N	8.13	0.82
21	I	11	90-120	A	N	8.05	3.40
21	I	11	90-120	B	N	7.85	3.22
21	I	14	90-120	A	N	7.96	3.55
21	I	14	90-120	B	N	8.06	6.32
21	I	14	90-120	C	N	7.89	5.75
21	I	24	90-120	B	N	6.81	2.50
21	I	24	90-120	C	N	7.67	2.94
21	I	24	90-120	A	N	6.82	3.66
21	I	4	120-150	A	N	7.99	1.43
21	I	4	120-150	B	N	8.32	0.66
21	I	4	120-150	C	N	8.22	0.93
21	I	11	120-150	B	N	7.96	2.67
21	I	11	120-150	A	N	8.14	4.11
21	I	11	120-150	C	N	8.11	1.41
21	I	14	120-150	A	N	7.93	3.93
21	I	14	120-150	B	N	7.95	6.42
21	I	14	120-150	C	N	7.97	5.37

21	I	24	120-150	A	N	7.17	3.35
21	I	24	120-150	B	N	7.32	3.27
21	I	24	120-150	C	N	7.71	1.89
21	I	4	150-180	C	N	7.91	2.88
21	I	4	150-180	A	N	7.90	3.66
21	I	4	150-180	B	N	8.04	3.83
21	I	11	150-180	C	N	0.00	0.00
21	I	11	150-180	B	N	7.99	3.90
21	I	14	150-180	A	N	7.94	4.97
21	I	14	150-180	B	N	8.42	10.91
21	I	14	150-180	C	N	7.98	5.56
21	I	24	150-180	C	N	7.45	3.49
21	I	24	150-180	B	N	7.60	2.63
21	I	24	150-180	A	N	7.32	4.05
21	T	1	0-8	D	N	7.78	5.83
21	T	12	0-8	D	N	7.92	7.85
21	T	13	0-8	D	N	8.05	7.09
21	T	19	0-8	D	N	7.78	7.10
21	T	1	8-15	D	N	7.94	7.31
21	T	12	8-15	D	N	7.07	7.84
21	T	13	8-15	D	N	7.83	6.73
21	T	19	8-15	D	N	7.99	4.66
21	T	1	15-30	D	N	6.74	9.05
21	T	12	15-30	D	N	4.70	8.32
21	T	13	15-30	D	N	7.79	7.06
21	T	19	15-30	D	N	8.00	13.35
21	T	1	30-60	D	N	6.31	8.72
21	T	12	30-60	D	N	6.83	5.39
21	T	13	30-60	D	N	7.42	4.41
21	T	19	30-60	D	N	7.66	8.64
21	T	1	60-90	D	N	6.86	4.19
21	T	12	60-90	D	N	7.72	3.43
21	T	13	60-90	D	N	7.51	3.85
21	T	19	60-90	D	N	5.95	7.88
21	T	1	90-120	D	N	6.95	4.00
21	T	12	90-120	D	N	7.85	2.78
21	T	13	90-120	D	N	7.78	3.38
21	T	19	90-120	D	N	7.57	6.24
21	T	1	0-30CS	D	N	7.50	2.42
21	T	12	0-30CS	D	N	7.85	4.05
21	T	13	0-30CS	D	N	7.93	3.22
21	T	19	0-30CS	D	N	8.14	3.22
21	T	1	30-60CS	D	N	8.10	1.38
21	T	12	30-60CS	D	N	8.03	3.09
21	T	13	30-60CS	D	N	7.98	3.30
21	T	19	30-60CS	D	N	7.91	3.32
21	T	1	60-90CS	D	N	7.59	3.64
21	T	12	60-90CS	D	N	8.02	7.30
21	T	13	60-90CS	D	N	7.87	4.05
21	T	19	60-90CS	D	N	8.00	4.58
27	A	4	0-8	D	N	8.17	3.73
27	A	7	0-8	D	N	8.17	5.33
27	A	17	0-8	D	N	8.70	0.00
27	A	19	0-8	D	N	8.07	7.43
27	A	4	8-15	D	N	8.12	4.45
27	A	7	8-15	D	N	8.13	6.11
27	A	17	8-15	D	N	8.58	0.00
27	A	19	8-15	D	N	7.85	5.56
27	A	4	15-30	D	N	7.18	3.14
27	A	7	15-30	D	N	7.88	5.80
27	A	17	15-30	D	N	8.40	1.14
27	A	19	15-30	D	N	5.62	4.92
27	A	4	30-60	D	N	7.27	2.41
27	A	7	30-60	D	N	8.00	4.53
27	A	17	30-60	D	N	5.60	0.82
27	A	19	30-60	D	N	7.13	4.23
27	A	4	60-90	D	N	7.88	1.65
27	A	7	60-90	D	N	7.93	3.72
27	A	19	60-90	D	N	8.03	2.56
27	C	2	0-8	D	N	4.82	2.71
27	C	10	0-8	D	N	4.78	4.33
27	C	14	0-8	D	N	5.40	2.34
27	C	21	0-8	D	N	6.31	1.84
27	C	2	8-15	D	N	5.07	1.39
27	C	10	8-15	D	N	4.51	3.08
27	C	14	8-15	D	N	7.34	2.03
27	C	21	8-15	D	N	4.54	0.59
27	C	2	15-30	D	N	7.70	3.91
27	C	10	15-30	D	N	5.17	4.30

27	C	14	15-30	D	N	6.53	3.50
27	C	21	15-30	D	N	4.80	1.52
27	C	2	30-60	D	N	7.67	4.70
27	C	10	30-60	D	N	7.53	5.54
27	C	14	30-60	D	N	7.43	3.52
27	C	21	30-60	D	N	5.97	0.58
27	C	14	60-90	D	N	7.57	4.56
27	D	5	0-8	B	N	8.02	3.66
27	D	5	0-8	A	N	8.18	3.91
27	D	5	0-8	C	N	8.29	0.00
27	D	11	0-8	A	N	7.87	0.00
27	D	11	0-8	C	N	7.91	0.00
27	D	11	0-8	B	N	8.10	4.42
27	D	16	0-8	A	N	8.12	3.61
27	D	16	0-8	B	N	8.40	0.00
27	D	16	0-8	C	N	8.62	0.00
27	D	22	0-8	C	N	7.95	7.50
27	D	22	0-8	B	N	8.20	0.00
27	D	22	0-8	A	N	8.05	0.00
27	D	5	8-15	B	N	8.19	2.29
27	D	5	8-15	A	N	7.81	0.95
27	D	5	8-15	C	N	8.21	0.00
27	D	11	8-15	C	N	7.62	6.78
27	D	11	8-15	B	N	8.02	3.53
27	D	11	8-15	A	N	7.84	0.00
27	D	16	8-15	C	N	8.25	0.00
27	D	16	8-15	B	N	8.30	0.00
27	D	16	8-15	A	N	8.34	0.00
27	D	22	8-15	C	N	8.00	0.00
27	D	22	8-15	A	N	8.19	0.00
27	D	22	8-15	B	N	8.18	4.42
27	D	5	15-30	A	N	8.35	0.00
27	D	5	15-30	C	N	7.65	2.73
27	D	5	15-30	B	N	7.78	4.65
27	D	11	15-30	B	N	6.52	1.75
27	D	11	15-30	A	N	7.75	6.02
27	D	11	15-30	C	N	7.66	4.56
27	D	16	15-30	A	N	7.86	4.29
27	D	16	15-30	B	N	7.99	0.00
27	D	16	15-30	C	N	7.79	3.38
27	D	22	15-30	A	N	8.03	7.78
27	D	22	15-30	B	N	8.22	3.11
27	D	22	15-30	C	N	7.71	8.88
27	D	5	30-60	A	N	8.28	2.19
27	D	5	30-60	C	N	7.38	2.21
27	D	5	30-60	B	N	7.93	2.06
27	D	11	30-60	C	N	5.58	3.33
27	D	11	30-60	B	N	5.68	2.17
27	D	11	30-60	A	N	5.06	4.42
27	D	16	30-60	A	N	7.99	4.57
27	D	16	30-60	C	N	5.97	3.56
27	D	16	30-60	B	N	8.11	0.00
27	D	22	30-60	C	N	7.75	9.88
27	D	22	30-60	A	N	7.93	5.96
27	D	22	30-60	B	N	7.92	5.77
27	D	5	60-90	A	N	8.21	2.15
27	D	5	60-90	C	N	7.61	0.75
27	D	5	60-90	B	N	6.85	0.00
27	D	11	60-90	C	N	5.02	0.00
27	D	11	60-90	B	N	5.74	1.56
27	D	11	60-90	A	N	6.14	3.31
27	D	16	60-90	A	N	7.35	2.65
27	D	16	60-90	C	N	7.48	5.27
27	D	16	60-90	B	N	8.60	1.80
27	D	22	60-90	B	N	7.99	6.75
27	D	22	60-90	C	N	6.41	5.00
27	D	22	60-90	A	N	7.89	5.38
27	D	16	90-120	B	N	8.71	0.00
27	D	16	90-120	C	N	5.48	0.00
27	D	16	90-120	A	N	5.12	0.00
27	D	22	90-120	A	N	8.01	6.18
27	X	1	0-8	D	N	8.23	3.53
27	X	9	0-8	D	N	8.38	2.56
27	X	13	0-8	D	N	8.23	2.27
27	X	20	0-8	D	N	8.18	8.94
27	X	1	8-15	D	N	8.10	4.05
27	X	9	8-15	D	N	8.12	2.58
27	X	13	8-15	D	N	7.94	2.71
27	X	20	8-15	D	N	7.83	5.64

27	X	1	15-30	D	N	7.58	3.55
27	X	9	15-30	D	N	7.77	2.04
27	X	13	15-30	D	N	7.38	2.27
27	X	20	15-30	D	N	5.12	3.60
27	X	1	30-60	D	N	7.69	1.85
27	X	9	30-60	D	N	8.02	1.26
27	X	13	30-60	D	N	8.16	6.47
27	X	20	30-60	D	N	7.81	2.47
27	X	9	60-90	D	N	8.18	1.43
27	X	20	60-90	D	N	8.05	2.08
27	X	20	90-120	D	N	5.60	1.18
33	A	5	0-8	D	N	7.19	8.07
33	A	7	0-8	D	N	8.24	5.10
33	A	18	0-8	D	N	7.71	10.28
33	A	21	0-8	D	N	7.96	10.07
33	A	5	8-15	D	N	8.21	8.75
33	A	7	8-15	D	N	8.09	8.61
33	A	18	8-15	D	N	7.94	11.39
33	A	21	8-15	D	N	7.98	8.26
33	A	5	15-30	D	N	5.86	6.35
33	A	7	15-30	D	N	8.10	8.22
33	A	18	15-30	D	N	6.95	8.80
33	A	21	15-30	D	N	5.32	6.01
33	A	5	30-60	D	N	6.91	6.92
33	A	7	30-60	D	N	8.08	5.58
33	A	18	30-60	D	N	6.82	7.84
33	A	21	30-60	D	N	6.94	7.08
33	A	5	60-90	D	N	8.11	5.27
33	A	7	60-90	D	N	8.13	3.51
33	A	18	60-90	D	N	8.26	0.00
33	A	21	60-90	D	N	7.73	4.36
33	A	5	90-120	D	N	8.14	2.09
33	A	7	90-120	D	N	7.99	4.03
33	A	18	90-120	D	N	8.01	3.67
33	A	21	90-120	D	N	7.91	2.16
33	C	4	0-8	D	N	3.61	5.97
33	C	12	0-8	D	N	4.47	8.34
33	C	16	0-8	D	N	6.30	6.64
33	C	20	0-8	D	N	7.80	2.97
33	C	4	8-15	D	N	3.89	4.67
33	C	12	8-15	D	N	4.65	5.23
33	C	16	8-15	D	N	6.97	7.00
33	C	20	8-15	D	N	3.96	4.83
33	C	4	15-30	D	N	4.07	5.05
33	C	12	15-30	D	N	4.56	4.95
33	C	16	15-30	D	N	7.71	10.09
33	C	20	15-30	D	N	8.34	2.35
33	C	4	30-60	D	N	6.94	4.79
33	C	12	30-60	D	N	7.00	4.41
33	C	16	30-60	D	N	7.99	9.97
33	C	20	30-60	D	N	4.54	2.74
33	C	4	60-90	D	N	7.05	3.19
33	C	12	60-90	D	N	7.41	1.83
33	C	16	60-90	D	N	7.01	10.76
33	C	20	60-90	D	N	7.98	4.03
33	C	4	90-120	D	N	7.07	1.23
33	C	12	90-120	D	N	7.56	2.22
33	C	16	90-120	D	N	8.23	0.00
33	C	20	90-120	D	N	8.22	3.10
33	C	4	120-150	D	N	7.32	1.30
33	C	12	120-150	D	N	7.67	1.46
33	C	16	120-150	D	N	8.44	0.00
33	C	20	120-150	D	N	7.82	1.88
33	C	4	150-180	D	N	7.75	8.75
33	C	12	150-180	D	N	7.47	3.03
33	C	16	150-180	D	N	8.03	9.28
33	C	20	150-180	D	N	8.01	2.60
33	D	2	0-8	B	N	8.40	3.23
33	D	2	0-8	A	N	8.34	0.00
33	D	2	0-8	C	N	8.10	0.00
33	D	8	0-8	B	N	7.97	6.03
33	D	8	0-8	C	N	8.08	3.23
33	D	17	0-8	C	N	7.81	1.37
33	D	17	0-8	B	N	7.98	6.34
33	D	17	0-8	A	N	7.65	9.79
33	D	23	0-8	B	N	7.41	8.05
33	D	23	0-8	C	N	8.13	3.68
33	D	23	0-8	A	N	7.65	6.08
33	D	2	8-15	C	N	8.14	6.55

33	D	2	8-15	B	N	8.16	6.75
33	D	2	8-15	A	N	8.08	0.00
33	D	8	8-15	B	N	7.90	3.14
33	D	8	8-15	A	N	8.07	0.04
33	D	8	8-15	C	N	7.36	0.00
33	D	17	8-15	A	N	7.80	11.45
33	D	17	8-15	B	N	7.51	9.13
33	D	17	8-15	C	N	7.91	9.13
33	D	23	8-15	C	N	8.14	6.28
33	D	23	8-15	B	N	7.59	6.39
33	D	23	8-15	A	N	7.99	6.16
33	D	2	15-30	C	N	7.62	4.40
33	D	2	15-30	B	N	8.09	6.80
33	D	2	15-30	A	N	7.81	3.46
33	D	8	15-30	A	N	7.94	5.71
33	D	8	15-30	B	N	8.16	2.24
33	D	8	15-30	C	N	8.21	1.36
33	D	17	15-30	A	N	8.12	11.72
33	D	17	15-30	C	N	7.48	8.99
33	D	17	15-30	B	N	7.95	9.15
33	D	23	15-30	A	N	7.35	6.92
33	D	23	15-30	C	N	8.28	7.65
33	D	23	15-30	B	N	7.87	7.00
33	D	2	30-60	A	N	7.75	2.94
33	D	2	30-60	B	N	7.94	3.33
33	D	2	30-60	C	N	4.11	3.75
33	D	8	30-60	B	N	8.09	1.96
33	D	8	30-60	C	N	8.08	4.46
33	D	8	30-60	A	N	7.87	5.23
33	D	17	30-60	B	N	8.37	9.09
33	D	17	30-60	C	N	8.24	8.51
33	D	17	30-60	A	N	8.30	13.12
33	D	23	30-60	C	N	8.17	4.04
33	D	23	30-60	B	N	8.04	5.58
33	D	23	30-60	A	N	8.31	5.42
33	D	2	60-90	A	N	7.81	0.00
33	D	2	60-90	C	N	3.97	4.00
33	D	2	60-90	B	N	8.07	2.51
33	D	8	60-90	B	N	8.22	1.69
33	D	8	60-90	A	N	8.07	2.26
33	D	8	60-90	C	N	7.07	3.86
33	D	17	60-90	A	N	8.13	8.74
33	D	17	60-90	B	N	8.30	7.04
33	D	17	60-90	C	N	8.26	6.44
33	D	23	60-90	B	N	7.93	3.72
33	D	23	60-90	C	N	7.76	3.61
33	D	23	60-90	A	N	8.11	2.09
33	D	8	90-120	C	N	7.41	4.68
33	D	8	90-120	B	N	8.23	1.59
33	D	17	90-120	B	N	8.20	4.16
33	D	17	90-120	C	N	8.11	2.20
33	D	17	90-120	A	N	7.78	8.14
33	D	23	90-120	A	N	8.01	1.10
33	D	23	90-120	C	N	7.86	3.28
33	D	23	90-120	B	N	7.94	1.35
33	D	17	120-180	C	N	7.96	5.54
33	D	17	120-180	B	N	8.07	0.05
33	D	17	120-180	A	N	8.23	3.82
33	D	23	120-180	B	N	8.05	1.32
33	D	23	120-180	C	N	7.92	3.46
33	D	23	120-180	A	N	8.02	3.18
33	D	17	150-180	A	N	8.03	5.73
33	D	17	150-180	C	N	8.07	5.46
33	D	17	150-180	B	N	7.98	5.27
33	D	23	150-180	B	N	8.76	3.39
33	D	23	150-180	C	N	8.06	2.70
33	I	1	0-8	A	N	8.14	0.00
33	I	1	0-8	B	N	7.45	0.00
33	I	1	0-8	C	N	7.86	9.89
33	I	10	0-8	A	N	5.40	0.00
33	I	10	0-8	C	N	7.85	6.83
33	I	10	0-8	B	N	7.89	6.98
33	I	13	0-8	B	N	7.89	5.33
33	I	13	0-8	A	N	8.04	6.09
33	I	13	0-8	C	N	7.90	5.59
33	I	22	0-8	B	N	8.13	10.75
33	I	22	0-8	C	N	8.02	8.83
33	I	22	0-8	A	N	8.07	7.55
33	I	1	8-15	B	N	8.09	9.41

33	I	1	8-15	A	N	8.20	5.85
33	I	1	8-15	C	N	8.16	7.66
33	I	10	8-15	A	N	7.50	0.00
33	I	10	8-15	B	N	7.91	8.16
33	I	10	8-15	C	N	7.75	4.98
33	I	13	8-15	C	N	8.26	8.77
33	I	13	8-15	B	N	7.98	7.83
33	I	13	8-15	A	N	7.93	8.66
33	I	22	8-15	A	N	8.20	8.93
33	I	22	8-15	B	N	8.18	11.44
33	I	22	8-15	C	N	8.19	10.20
33	I	1	15-30	A	N	5.67	3.83
33	I	1	15-30	C	N	5.05	4.25
33	I	1	15-30	B	N	4.78	5.67
33	I	10	15-30	A	N	7.90	7.70
33	I	10	15-30	C	N	7.38	4.86
33	I	10	15-30	B	N	8.10	1.77
33	I	13	15-30	C	N	7.96	8.07
33	I	13	15-30	B	N	8.18	6.57
33	I	13	15-30	A	N	8.14	7.15
33	I	22	15-30	C	N	7.03	6.87
33	I	22	15-30	A	N	4.97	6.83
33	I	22	15-30	B	N	4.81	8.58
33	I	1	30-60	A	N	3.78	3.25
33	I	1	30-60	C	N	7.35	4.45
33	I	1	30-60	B	N	6.92	5.15
33	I	10	30-60	A	N	8.12	4.26
33	I	10	30-60	B	N	6.98	3.93
33	I	10	30-60	C	N	8.20	4.71
33	I	13	30-60	B	N	8.13	5.40
33	I	13	30-60	C	N	7.49	5.63
33	I	13	30-60	A	N	7.84	4.36
33	I	22	30-60	C	N	7.74	5.90
33	I	22	30-60	A	N	8.05	7.41
33	I	22	30-60	B	N	7.88	6.18
33	I	1	60-90	B	N	6.66	3.33
33	I	1	60-90	A	N	6.98	3.55
33	I	1	60-90	C	N	8.00	3.37
33	I	10	60-90	B	N	8.03	2.11
33	I	10	60-90	A	N	7.78	1.98
33	I	10	60-90	C	N	8.36	0.60
33	I	13	60-90	C	N	8.01	4.87
33	I	13	60-90	B	N	7.99	2.34
33	I	13	60-90	A	N	8.07	1.95
33	I	22	60-90	C	N	8.18	2.50
33	I	22	60-90	A	N	8.27	4.79
33	I	22	60-90	B	N	6.92	2.40
33	I	10	90-120	A	N	8.09	1.62
33	I	10	90-120	B	N	8.07	1.58
33	I	10	90-120	C	N	8.34	1.13
33	I	13	90-120	B	N	8.06	1.44
33	I	13	90-120	C	N	7.49	3.46
33	I	13	90-120	A	N	8.17	1.49
33	I	22	90-120	C	N	7.89	1.63
33	I	22	90-120	B	N	7.85	2.57
33	I	22	90-120	A	N	8.19	3.11
33	I	10	120-150	A	N	8.07	1.17
33	I	10	120-150	B	N	7.67	3.26
33	I	10	120-150	C	N	8.08	0.00
33	I	13	120-150	A	N	7.99	1.31
33	I	13	120-150	B	N	8.17	1.49
33	I	13	120-150	C	N	7.97	1.83
33	I	22	120-150	B	N	7.45	2.79
33	I	22	120-150	A	N	7.88	1.61
33	I	22	120-150	C	N	7.06	1.24
33	I	10	150-180	A	N	7.97	3.55
33	I	10	150-180	B	N	8.05	0.00
33	I	10	150-180	C	N	7.98	1.87
33	I	13	150-180	C	N	7.60	3.28
33	I	13	150-180	B	N	7.97	1.48
33	I	13	150-180	A	N	7.89	1.46
33	T	6	0-8	D	N	7.82	1.76
33	T	9	0-8	D	N	7.52	4.75
33	T	14	0-8	D	N	8.13	0.29
33	T	19	0-8	D	N	7.91	5.74
33	T	6	8-15	D	N	7.86	4.09
33	T	9	8-15	D	N	8.27	4.18
33	T	14	8-15	D	N	8.42	0.25
33	T	19	8-15	D	N	8.21	6.42

33	T	6	15-30	D	N	7.64	7.44
33	T	9	15-30	D	N	7.87	4.49
33	T	14	15-30	D	N	7.98	6.20
33	T	19	15-30	D	N	8.32	3.93
33	T	6	30-60	D	N	7.41	4.85
33	T	9	30-60	D	N	4.30	3.93
33	T	14	30-60	D	N	7.99	4.46
33	T	19	30-60	D	N	8.11	3.69
33	T	6	60-90	D	N	7.36	4.58
33	T	9	60-90	D	N	3.92	4.53
33	T	14	60-90	D	N	7.45	4.07
33	T	19	60-90	D	N	7.94	2.88
33	T	6	90-120	D	N	8.34	3.61
33	T	9	90-120	D	N	4.14	4.20
33	T	14	90-120	D	N	7.74	4.29
33	T	19	90-120	D	N	7.91	2.90
33	T	6	0-30CS	D	N	8.16	1.17
33	T	9	0-30CS	D	N	7.94	4.05
33	T	14	0-30CS	D	N	7.97	3.57
33	T	19	0-30CS	D	N	8.04	3.56
33	T	6	30-60CS	D	N	8.24	1.46
33	T	9	30-60CS	D	N	7.93	4.07
33	T	14	30-60CS	D	N	8.13	2.66
33	T	19	30-60CS	D	N	8.01	4.47
33	T	6	60-90CS	D	N	8.16	3.91
33	T	9	60-90CS	D	N	7.95	5.21
33	T	14	60-90CS	D	N	7.94	6.15
33	T	19	60-90CS	D	N	7.83	4.61
2	A	22	0-8	D	R	7.10	9.58
2	A	22	8-15	D	R	7.45	4.26
2	A	22	15-30	D	R	7.21	3.89
2	A	22	30-60	D	R	4.72	5.03
2	A	22	60-90	D	R	5.92	4.55
2	A	22	90-120	D	R	5.76	6.43
2	X	5	0-8	D	R	7.16	12.92
2	X	5	8-15	D	R	6.84	11.21
2	X	5	15-30	D	R	3.59	10.28
2	X	5	30-60	D	R	3.09	8.67
2	X	5	60-90	D	R	3.63	5.68
2	X	5	90-120	D	R	4.82	5.74
7	A	10	0-8	D	R	7.92	3.48
7	A	10	8-15	D	R	7.84	4.24
7	A	10	15-30	D	R	7.34	4.18
7	A	1	30-60	D	R	4.93	4.10
7	A	10	30-60	D	R	4.65	3.25
7	A	10	60-90	D	R	4.65	4.12
7	A	10	90-120	D	R	5.04	2.44
7	C	21	0-8	D	R	8.13	1.37
7	C	21	8-15	D	R	6.61	0.12
7	C	21	15-30	D	R	6.08	0.07
7	C	21	30-60	D	R	4.56	0.29
7	C	21	60-90	D	R	4.86	0.45
21	A	9	0-8	D	R	7.72	7.01
21	A	9	8-15	D	R	7.94	5.92
21	A	9	15-30	D	R	7.53	7.46
21	A	9	30-60	D	R	7.18	7.04
21	A	9	60-90	D	R	7.93	5.88
21	A	9	90-120	D	R	8.23	4.10
21	D	2	90-120	A	R	6.60	4.92
21	T	19	0-8	D	R	8.09	13.14
21	T	19	8-15	D	R	7.70	11.08
21	T	19	15-30	D	R	7.11	8.51
21	T	19	30-60	D	R	7.40	7.13
21	T	19	60-90	D	R	8.01	5.57
21	T	19	90-120	D	R	8.07	5.04
21	T	19	0-30CS	D	R	8.05	2.94
21	T	19	30-60CS	D	R	7.98	1.62
21	T	19	60-90CS	D	R	7.99	5.42
27	C	21	0-8	D	R	4.66	3.53
27	C	21	8-15	D	R	5.03	1.02
27	C	21	15-30	D	R	5.16	1.57
27	C	21	30-60	D	R	6.77	1.64
27	X	13	0-8	D	R	8.42	2.68
27	X	13	8-15	D	R	7.90	5.80
27	X	13	15-30	D	R	7.17	3.79
27	X	13	30-60	D	R	7.73	4.06
33	A	5	0-8	D	R	7.95	1.60
33	A	5	8-15	D	R	7.91	8.82
33	A	5	15-30	D	R	6.64	0.08

33	A	5	30-60	D	R	7.36	6.11
33	A	5	60-90	D	R	8.13	6.07
33	A	5	90-120	D	R	8.30	3.45
33	C	16	0-8	D	R	6.96	9.47
33	C	16	8-15	D	R	7.96	6.32
33	C	16	15-30	D	R	5.02	6.91
33	C	16	30-60	D	R	6.66	10.27
33	C	16	60-90	D	R	7.65	13.44
33	C	16	90-120	D	R	0.00	0.00
33	C	16	120-150	D	R	8.01	0.00
33	C	16	150-180	D	R	8.04	8.14
2	A	22	15-30	D	D	3.60	4.50
2	C	4	15-30	D	D	3.60	7.92
2	C	12	60-90	D	D	5.30	4.45
2	D	6	30-60	C	D	5.90	4.95
2	D	10	30-60	C	D	6.58	4.88
2	D	16	30-60	C	D	6.58	3.34
2	I	13	30-60	C	D	4.91	5.74
2	I	3	90-120	A	D	5.85	9.84
2	I	23	90-120	A	D	6.05	5.04
7	A	10	30-60	D	D	4.44	2.33
7	A	16	30-60	D	D	3.51	2.45
7	A	23	30-60	D	D	4.10	0.97
7	A	10	60-90	R	D	4.60	4.33
7	C	17	30-60	D	D	4.24	3.31
7	I	8	60-90	A	D	7.69	3.07
7	I	18	90-120	C	D	7.30	2.56
7	T	19	30-60	D	D	4.70	4.13
7	T	6	30-60CS	D	D	8.30	1.59
21	A	5	15-30	D	D	6.75	7.14
21	A	23	30-60	D	D	6.18	5.24
21	A	15	90-120	C	D	8.16	0.82
21	C	18	15-30	D	D	6.50	4.72
21	C	20	30-60	D	D	6.87	6.08
21	C	10	60-90	D	D	7.94	5.94
21	C	6	90-120	D	D	7.88	3.08
21	D	17	60-90	A	D	7.83	6.97
21	D	21	60-90	A	D	8.03	5.34
21	D	7	90-120	B	D	7.77	3.07
21	I	4	30-60	A	D	7.30	5.87
21	I	11	60-90	C	D	7.93	1.82
21	I	14	90-120	B	D	8.00	6.43
21	I	24	150-180	A	D	7.36	4.05
21	T	19	30-60	R	D	7.27	7.23
21	T	12	60-90	D	D	7.78	3.53
27	A	7	30-60	D	D	7.93	4.72
27	A	17	30-60	D	D	5.54	0.88
27	X	13	15-30	D	D	7.55	4.25
27	X	1	30-60	D	D	7.96	1.75
27	X	13	30-60	D	D	8.02	6.34
27	X	20	30-60	D	D	7.84	2.46
33	A	7	15-30	D	D	8.26	6.54
33	A	21	30-60	D	D	7.99	7.65
33	C	4	30-60	D	D	7.00	4.13
33	I	10	30-60	B	D	7.62	4.97
33	I	22	60-90	C	D	7.99	1.72
33	I	10	120-150	C	D	7.85	1.46
33	I	10	150-180	A	D	8.24	3.15
33	T	19	90-120	D	D	7.99	3.27

Notes:

Treatment descriptors are defined as follows:

A = Agricultural tillage plot.

D = Deep tillage plot.

I = Injection plot.

C = Control plot.

X = Extra plot(see text for amendment).

The symbols for the core column are as follows:

D = Single core samples taken from the agricultural tillage, control and extra plots.

A,B,& C = Three distinct core samples from the both the deep tillage and injection plots.

The SC descriptor in the depth column refers to cover soil.

LEGEND

STARS PORE WATER CATIONS AND ANIONS RESULTS

Trt = Treatment type

A = Agricultural
C = Control
D = Deep Plow
I = Injection
X = Extra
T = Topsoil Wedge

Sample Type

N = Natural
CCB = Cross Contamination Blank
BFS = Blind Field Sample
BB = Bottle Blank
R = Replicate

Material Type

T = Tailings
S = Native soil
QC = Laboratory quality control (see Sample Type)

Laboratory Data Qualifiers

U = Not detected at reported value
J = Estimated value
J-B = Estimate due to blank contamination
J-S = Estimate due to spike out of control
J-E = Estimate due to interference

Note: There are no anion data for 1991.

STARS 1990 Pore Water Cations Results (ug/

Site	Trt	Pot	Depth (cm)	Sample Type	Material Type	Amended	Sample Date	Al	As3	As5	Cd	Cu	Ca	Fe	Pb	Mg	Mn	K	Na	Zn	pH	Eh (mv)	SC (mmhos/	Comments
2	A	23	40	N	T	no	8-15-90	197000 J-C	R	R	0	115	500000	258000	291	41000	21600 J-D	8200	24000 J-D	257000	3.53	74	3.87	
2	A	22	90	N	S	no	8-15-90	567 J-C	R	R	0	45	95000 J-C	85700	44.3	13500	8.00 J-D	6560	44000 J-D	60800	5.49	57	0.56	
2	C	6	40	N	T	no	8-15-90	3700	R	R	1100 J-D	14.5	4.2000	79500.0	4.0	4470.0	944000	36000	4.000	94.000	4.42	J	J.0.0	
2	C	43	90	N	S	no	8-15-90	5365	R	R	58	14.5	290000	39800.0	61	5765.0	20000	4400	57.00	1040000	5.19	60	8.01	
2	D	24	40	N	T	yes	8-15-90	90	R	R	8	14.5	140000	95.0	44.3	34600	3700	7930	43900	18500	5.48	46	1.46	
2	D	24	90	N	T	yes	8-15-90	8530 J-D	R	R	8310 J-D	282000	496000	2700	42	1175000	47.000	2460	153000	24200000	4.61	429	2.83	
2	D	24	50	N	S	no	8-15-90	60 J-D	R	R	357 J-D	490	52200	70 J-B	44.3	176000	19 J-B	1.10 J	7650	1740000	8.64	169	8.41	
3	I	23	40	N	T	yes	8-15-90	3460	R	R	980 J-D	25200	2550000	36910.0	105	25600	85.00	9810	76600	6870000	4.13	370	4.38	
3	I	23	90	N	T	yes	8-15-90	38700 J-C	R	R	765	31500	434000 J-C	87000.0	539	443000	325000 J-D	6840	58000 J-D	4840000	2.96	350	1.29	
3	J	23	50	N	S	no	8-15-90	88	R	R	8	4.5	468000	19220.0	44.3	167000	59700 J-D	8010	83000 J-C	2590.00	5.90	29	4.80	
3	J	9	40	N	T	no	8-15-90	69 J-C	R	R	125 J-D	4950	1137000	49	44.3	31930	4560	8530	5.00	9440	6.19	47		
3	J	9	90	None	T	no	8-15-90	2800	R	R	2500 J-D	94000	463000	2210.0	981	64100	46.00	3600	40300	860000	2.65	-454	7.29	
3	K	2	40	N	T	no	8-15-90	0			0	0	0	0	0	0	0	0	0	0				
3	K	21	90	N	T	no	8-15-90	56600	R	R	768 J-D	400	378000	3850000	2050	449000	303000	33300	270000	3500000	3.95	87	20.00	No data, low sample volume
3	A	6	40	N	T	no	8-15-90	10400	R	R	85 J-D	4.5	285000	5640.0	20	146000	213000	16300	94700	2070000	5.14	78	7.34	
3	A	6	90	N	S	no	8-15-90	0			0	0	0	0	0	0	0	0	0	0	8.10	0	0.00	small vol approx 5ml, no data
3	K	7	40	N	T	no	8-15-90	239000 J-C	R	R	9360 J-C	428000	8000 J-C	447000 J-C	1950	168000 J-C	789000 J-C	1210 J-C	187000 J-C	3280000 J-C	2.73	470	3.10	
3	K	7	90	N	S	no	8-15-90	27 J-C	R	R	8 J-C	612	20400 J-C	889 J-C	44.3	2850 J-C	731 J-C	8140 J-C	7490000 J-C	3960	5.49	317	0.82	
3	C	7	150	N	S	no	8-15-90	78 J-C	R	R	97 J-C	38.00	22800 J-C	0 J-C	243 J-C	3.50 J-C	29.00	4670 J-C	40000 J-C	85.00 J-C	4.89	280	23	
3	D	4	40	N	T	yes	8-14-90	60 J-C	R	R	53 J-C	80	93200 J-C	6.0 J-C	44.3	26000 J-C	28200 J-C	2410 J-C	33.000 J-C	34900 J-C	5.07	346	68	
3	D	4	90	N	T	yes	8-14-90	60 J-C	R	R	38 J-C	58	349000 J-C	8 J-C	44.3	7590 J-C	59.0 J-C	6940 J-C	353000 J-C	10700 J-C	5.74	66	65	
3		8	40	N	S	no	8-14-90	60 J-C	R	R	9 J-C	23	29850 J-C	11.4 J-C	44.3	7300 J-C	503	8560 J-C	99200 J-C	3100	8.75	49	64	
3		8	90	N	S	yes	8-14-90	60 J-C	R	R	40 J-C	443	22400 J-C	5 J-C	44.3	8300 J-C	1330.0 J-C	9550 J-C	44000 J-C	290 J-B	8.68	144	10	
3		8	50	N	S	yes	8-15-90	60 J-C	R	R	237 J-C	15300	85000 J-C	3 J-C	44.3	8200 J-C	1330.0 J-C	5850 J-C	130000 J-C	9080	8.8	220	3.78	
3		3	40	N	S	no	8-15-90	60 J-C	R	R	73 J-C	78	5.100 J-C	3490.0 J-C	44.3	2200 J-C	46500 J-C	7070 J-C	129000 J-C	58000 J-C	4.86	256	4.7	
3		3	90	N	S	no	8-14-90	5 J-C	R	R	958 J-C	13500	47000 J-C	46 J-C	44.3	2.8.0 J-C	72800 J-C	8100 J-C	46000 J-C	617 J-B	5.33	76	38	
2	A	5	40	N	T	no	8-14-90	60 J-C	R	R	5 J-C	58	103000 J-C	0 J-C	44.3	896 J-C	97600 J-C	8600 J-C	80130 J-C	163000 J-C	6.58	25	83	
2	A	5	90	N	T	no	8-15-90	8 J-C	R	R	878 J-C	7010	563000 J-C	0 J-C	44.3	0 J-C	660 J-C	8450 J-C	2.4000 J-C	2730	6.50	118	1.56	
2	B	8	40	N	T	no	8-15-90	60 J-C	R	R	7 J-C	28	456000 J-C	143 J-C	44.3	6000 J-C	106000 J-C	33500 J-C	328.00 J-C	68000 J-C	5.1	227	5.38	
2	B	8	90	N	T	no	8-15-90	116 J-C	R	R	850 J-C	7800	542.50 J-C	84 J-C	44.3	6000 J-C	43.0 J-C	10400 J-C	88700 J-C	1120 J-B	7.24	77	3.09	
2	C	8	40	N	S	no	8-15-90	60 J-C	R	R	8 J-C	65.0	618.00 J-C	49 J-C	44.3	3000 J-C	2.1.00 J-C	3.300 J-C	20500 J-C	3710000 J-C	8.78	278	6.08	
2	C	8	90	N	S	no	8-15-90	60 J-C	R	R	83 J-C	2740	8.00 J-C	15 J-C	44.3	3000 J-C	31050 J-C	36800 J-C	33500 J-C	09	6.80	300	4.5	
2	D	7	40	None	T	yes	8-15-90	0	R	R	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	D	7	90	N	T	yes	8-15-90	92 J-C	R	R	208 J-C	464	564000 J-C	45 J-C	44.3	0	0	0	0	0	0	0	0	
4		4	40	N	T	no	8-15-90	60 J-C	R	R	8 J-C	58	76000 J-C	7 J-C	44.3	ERR	174000 J-C	6700 J-C	356000 J-C	50.00	6.85	197	5.84	No data, sample dry
4		4	90	N	T	yes	8-15-90	335	R	R	670 J-C	4.0	443000 J-C	870 J-C	44.3	ERR	569	3320 J-C	2.0.00 J-C	569 J-B	7.04	8	6.4	
4		4	50	None	S	no	8-15-90	89	R	R	8 J-C	79	134000 J-C	28 J-C	44.3	9700	594000 J-C	20800 J-C	782000 J-C	5200.0	0.00	0	0.00	Low vol, dry sample
4		3	40	None	S	no	8-15-90	0	R	R	0	J	J	0	0	3500.0	6.0	4440 J-C	498000	300 J-B	8.24	146	3.48	Low vol, dry sample
4		3	90	N	S	no	8-15-90	0			0	0	0	0	0	0	0	0	0	0				No data, sample dry
3	A		40	N	S	no	8-15-90	109	R	R	3.1 J-C	5	305000 J-C	0 J-C	44.3	97000	94	9.0 J-C	1050 J-C	54 J-B	7.60	50	2.05	No data, sample dry
3	A		90	N	S	no	8-15-90	60	R	R	46 J-C	264	2260.0 J-C	22 J-C	44.3	38500	534	7220 J-C	280000	3600	8.85	76	4.68	
3	C		40	N	S	no	8-15-90	353	R	R	9 J-C	358	39.00 J-C	87 J-C	44.3	20400	176	7900 J-C	365000	83 J-B	7.7	46	2.85	Very low vol/dry sample
3	C		90	N	S	no	8-15-90	60	R	R	9 J-C	0	55000 J-C	46 J-C	44.1	3.5000	154 J-B	9800 J-C	046000	EAM J-B	7.5	54	2.94	Small sample
3	C		40	None	S	no	8-15-90	0	R	R	40 J-C	430	5000 J-C	50 J-C	44.3	52.0	981	24600 J-C	65.000	465000	6.92	1.0	4.90	
3	D		40	None	S	yes	8-15-90	0			0	0	0	0	0	0	0	0	0	0				No data, sample dry
3	D		90	None	S	yes	8-15-90	0			0	0	0	0	0	0	0	0	0	0				No data, sample dry
3	D		40	None	S	no	8-15-90	0			0	0	0	0	0	0	0	0	0	0				No data, sample dry
3	D		90	None	S	no	8-15-90	0			0	0	0	0	0	0	0	0	0	0				No data, sample dry
3	A		40	N	S	no	8-15-90	650 J-C	R	R	453 J-C	27200	46.00 J-C	86 J-C	52	402000	28.00 J-C	18.000	90.000 J-C	70400	5.5	4.8	6.16	
3	A		90	N	S	no	8-15-90	89 J-C	R	R	33 J-C	36	63000 J-C	94 J-C	44.3	73.00 J-C	14 J-DB	7050.0	98100 J-C	45 J-B	8.6	55	5	
3	C		40	N	T	no	8-15-90	58400	R	R	2460 J-C	485000	436000 J-C	1280 J-C	57 J-C	3.000 J-C	241000 J-D	49000 J-C	270000 J-C	444000 J-C	4.1	55	5.44	
3	C		90	N	T	no	8-15-90	81 J-C	R	R	33 J-C	87	2.4000 J-C	54 J-C	44.1	74400 J-C	148 J-DB	26400 J-C	153000 J-C	48 J-B	7.19	9	8	
3	D		40	None	S	yes	8-15-90	60 J-C	R	R	33 J-C	47	200000 J-C	54 J-C	44.3	7.000 J-C	360 J-DB	7.300 J-C	77700 J-C	67 J-B	7.3	9	15	
3	D		90	None	S	yes	8-15-90	0	R		0	0	0	0	0	0	0	0	0	0				No data, sample dry
3	D		130	N	S	yes	8-15-90	0			0	0	0	0	0	0	0	0	0	0				No data, sample dry
3	C		40	N	T	no	8-15-90	80 J-C	R		0	0	0	0	0	0	0	0	0	0				
3	C		90	N	T	yes	8-15-90	34000 J-C	R	R	898 J-C	58400	3.000 J-C	1 J-C	44.3	233.0 J-C	805 J-D	7270 J-C	209000 J-C	280 J-B	7.5	84	48	
3	D		50	N	S	yes	8-15-90	80 J-C	R	R	33 J-C	44	123000 J-C	33 J-C	44.3	420 J-C	40000 J-C	32400 J-C	1690000 J-C	01000 J-C	4.33	499	3.42	
3	D		40	N	S	no	8-15-90	80 J-C	R	R	33 J-C	7.000 J-C	484000 J-C	94 J-C	44.3	4500 J-C	65 J-DB	26700 J-C	2760.0 J-C	128 J-B	7.43	82	4	
3	D		90	N	S	no	8-15-90	582.0 J-C	R	R	839 J-C	64300	454000 J-C	34 J-C	44.3	44800	26 J-DB	25400 J-C	55300 J-C	48 J-B	7.42	100	2	
						no	8-15-90	83 J-C	R	R	392	858	454000 J-C	8.0 J-C	44.3	97000	4170 J-D	31900 J-C	459000 J-C	1 0000 J-C	3.68	290	3.50	
																				92000	6.33	22	4.4	
7	A	24	0	CCB	QC		8-8-90	80 J-C	R	R	33 J-C	45 J-C	44	8.4 J-C		57.0 J-C	7 J-B	710 J-C	292	50 J-B		2.30	530	9.7
8	A	7	40	CCB	QC		8-15-90	60 J-C	R	R	33 J-C	45 J-C	140 J-C	9 J-C	44.3 J-C	57.0 J-C	7.0 J-C	365 J-C			6.63	63	5.8	No data
8	A	7	90	CCB	QC		8-15-90	60 J-C	R	R	33 J-C	45 J-C	118 J-C	8.8 J-C	44.3 J-C	57.0 J-C	7.0 J-C	418 J-C			7.07	2	6.08	
8	A	7	40	CCB	QC		8-15-90	60 J-C	R	R	33 J-C	45 J-C	141 J-C	8 J-C	44.3 J-C	57.0 J-C	7.0 J-C	534 J-C			7.38	143	92	
8	A	20	40	BF5	QC		8-15-90	459 J-C	R	R	32 J-C	104	111 J-C	8 J-C	44.3 J-C	57.0 J-C	7.0 J-C	465 J-C						
8	A	20	90	BF5	QC		8-15-90	66 J-C	R	R	33 J-C	45 J-C	5540 J-C	49 J-C	44.3 J-C	57.0 J-C	7.0 J-C	1770 J-C						
8	A	17	50	BF5	QC		8-15-90	98 J-C	R	R	33 J-C	45 J-C	5580 J-C	8 J-C	44.3 J-C	57.0 J-C	7.0 J-C	580 J-C						
8	A	7	40	BF5	QC		8-15-90	150 J-C	R	R	33 J-C	45 J-C	5580 J-C	8.8 J-C	44.3 J-C	57.0 J-C	7.0 J-C	1520 J-C						
8	C	4	40	BF5	QC		8-5-90	178 J-C	R	R	33 J-C	45 J-C	5250 J-C	8.8 J-C	44.3 J-C	57.0 J-C	7.0 J-C	1520 J-C						
8	C	6	40	BF5	QC		8-5-90	128 J-C	R	R	33 J-C	45 J-C	5270 J-C	8.8 J-C	44.3 J-C	57.0 J-C	7.0 J-C	1520 J-C						
8	C	6	90	BF5	QC		8-6-90	459 J-C	R	R	29 J-C	32 J-C	163 J-C	8.8 J-C	44.3 J-C	57.0 J-C	21.0 J-DB	500 J-C						
8	C	24	0	BB	QC		8-5-90	549 J-C	R	R	29 J-C	1.9 J-C	95 J-C	24 J-C	44.3 J-C	57.0 J-C	17.0 J-C	608 J-C						
8	C	6	40	BF5	QC		8-5-90	567 J-C	R	R	2.2 J-C	93 J-C	110 J-C	8.8 J-C	44.3 J-C	57.0 J-C	17.0 J-C	678 J-C						
8	C	6	90	BB	QC		8-5-90	309 J-C	R	R	29 J-C	8.98 J-C	87 J-C	8.8 J-C	44.3 J-C	57.0 J-C	17.0 J-C	59 J-C						
8	C	6	50	BB	QC		8-6-90	60 J-C	R	R	33 J-C	14.8 J-C	80	34 J-C	44.3 J-C	57.0 J-C	17.0 J-DB	605 J-C						
8	C		40		QC		8-5-90	8.8.8 J-C																
8	A	2	40	BF5	QC		8-5-90	60 J-C	R	R	33 J-C	45 J-C	2	8.8 J-C	44.3 J-C	57.0 J-C	7.0 J-B	362						
8	A	2	90	BF5	QC		8-5-90	60 J-C	R	R	33 J-C	45 J-C	42 J-C	8.8 J-C	44.3 J-C	57.0 J-C	7.0 J-C	4 J-C						
8	C	2	40	BF5	QC		8-5-90	60 J-C	R	R	33 J-C	45 J-C	240 J-C	8.8 J-C	44.3 J-C	57.0 J-C	7.0 J-C	420						
8	C	2	90	BF5	QC		8-5-90	348.0 J-C	R	R	1.00 J-C	45 J-C	1000 J-C	8.8 J-C	44.3 J-C	57.0 J-C	7.0 J-C	444 J-C						
8	C	2	150	BF5	QC		8-5-90	743000 J-C	R	R	9600 J-C	1430000	62000 J-C	0 J-C	44.3 J-C	57.0 J-C	7.0 J-C	84000 J-C						
						no	8-5-90	80 J-C	R	R	7.1 J-C	52	100 J-C	53 J-C	44.3 J-C	57.0 J-C	7.0 J-C	24000 J-C						
						no	8-5-90	80933 J-C	R	R	2260 J-C	287000	43 J-C	340 J-C	44.3 J-C	57.0 J-C	7.0 J-C	27000 J-C						

STARS 1990 Pore Water Anions Results (ug/l)

Site	Trt	Pot	Depth (cm)	Sample Type	Material Type	Amended	Sample Date	ALK	Cl	F	NO3	NO2	PO4	SO4	Comments
2	A	22	40	N	T	no	8-15-90	5000 U	38000	1920 J-SB	12 U-P	9 U	64 U-R	2850000	
2	A	22	90	N	S	no	8-15-90	5000 U	20200 J-B	3670 J-SB	12 U-P	9 U	64 U-R	907000	
2	C	20	40	N	T	no	8-15-90	5000 U	36 UJ-B	7 UJ-B	5760 J-SB	13900 J-S	64 U-R	35 00000	
2	C	20	90	N	S	no	8-15-90	5000 U	55000	17400 J-SB	12 UJ-R	24000 J-S	64 U-R	9000000	
2	D	24	40	N	T	no	8-15-90	43400	35300	2700 J-SB	12 UJ-R	9 UJ	64 UJ-R	822000	
2	D	24	90	N	T	yes	8-15-90	65600	20000 J-B	3900 J-S	12 UJ-R	9 UJ	64 UJ-R	1180000	
2	D	24	150	N	S	no	8-15-90	168000	6360 J-B	3250 J-SB	2 UJ-R	9 UJ	64 UJ-R	5460000	
2		23	40	N	T	no	8-15-90	5000 U	20700 J-B	3200 J-SB	12 UJ-R	9 UJ	64 UJ-R	8170000	
2		23	90	N	T	yes	8-15-90	5000 U	36 UJ-B	14500 J-S	12 UJ-R	9 UJ	64 UJ-R	0500000	
2	I	23	150	N	S	no	8-15-90	151000	55000	8300 J-S	12 UJ-R	28800 J-S	64 UJ-R	5540000	
2	T	9	40	N	T	no	8-15-90	5000 U	75200	2000 J-SB	12 UJ-R	2460 J-S	64 UJ-R	5180000	
2	T	19	90	None	T	no	8-15-90	26500	7000 J-B	7 UJ-B	1290 J-SB	9 UJ	12 UJ-R	1760000	
2	X	2	40	N	T	no	8-15-90	5000 U	12600 J-B	3970 J-SB	12 UJ-R	9 UJ	64 UJ-R	793000	
2	X	21	90	N	T	no	8-15-90	5000 U	36 UJ-B	7 UJ-B	12 UJ-R	17100 J-S	64 UJ-R	4643000	
7	A	8	40	N	S	no	8-15-90		36 UJ-B	49600 J-S	12 UJ-R	21470 J-S	64 UJ-R	9500000	
7	A	18	90	N	T	no	8-15-90	5000 U	16000 J-S	7 UJ	4060 J-S	4480 J-S	64 UJ-R	6570000	No data-low volume
7	C	17	40	N	S	no	8-15-90	35000	6250 J-SB	1040	8410 J-S	8 UJ-R	64 UJ-R	211000	
7	C	7	90	N	S	no	8-15-90	5000 U	8320 J-SB	5350	77 0 J-S	9 UJ-R	64 UJ-R	299000	
7	D	7	50	N	S	no	8-15-90	5000 U	25100 J-S	5800	770 J-S	9 UJ-R	64 UJ-R	398000	
7	D	14	40	N	T	yes	8-14-90	13600	11800 J-S	2500	30000 J-S	9 UJ-R	64 UJ-R	551000	
7	D	4	90	N	T	yes	8-14-90	5 600	26800 J-S	2990	32500 J-S	9 UJ-R	64 UJ-R	567000	
7	I	4	150	N	S	no	8-14-90	4490	18000 J-S	4290	14 0 J-S	9 UJ-R	64 UJ-R	377000	
7		16	40	N	S	yes	8-15-90	105000	5050 J-SB	1420	8060 J-S	9 UJ-R	64 UJ-R	192000	
7		8	90	N	S	yes	8-15-90	60600	12700 J-S	2410	14000 J-S	9 UJ-R	12 UJ-R	150000	
7	T	18	150	N	S	no	8-15-90	27600	10700 J-S	4150	72 J-S	9 UJ-R	64 UJ-R	463000	
7	T	13	40	N	S	no	8-15-90	54400	8000 J-SB	5800	10020 J-S	9 UJ-R	64 UJ-R	1080000	
21	A	5	90	N	S	no	8-14-90	20900	28000 J-S	4860	2 UJ-R	9 UJ-R	64 UJ-R	504000	
21	A	5	90	N	T	no	8-15-90	180000	70000	2990	60000 J-S	9 UJ-R	64 UJ-R	3560000	
21	C	8	40	N	T	no	8-15-90	324000	16000 J-B	2100	16200 J-S	9 UJ-R	64 UJ-R	1350000	
21	C	8	90	N	S	no	8-15-90	53000	38500 J-S	3160	57000 J-S	9 UJ-R	64 UJ-R	2850000	
21	C	8	150	N	S	no	8-15-90	25200	1 500 J-S	2010	70000 J-S	9 UJ-R	64 UJ-R	2150000	
21	D	7	40	None	T	yes	8-15-90	18000	1 00 J-B	1 00	15300 J-S	9 UJ-R	64 UJ-R	1040000	
21	D	7	90	N	T	yes	8-15-90	60 00	55000 J-B	4400	80000 J-S	9 UJ-R	64 UJ-R	3140000	No sample
21		14	90	N	T	no	8-15-90	13 000	26000	840	2500 J-S	9 UJ-R	64 UJ-R	4 8000	
21		4	150	N	S	yes	8-15-90	24400	110000	8200	60000 J-S	9 UJ-R	64 UJ-R	7730000	
21		14	50	None	S	no	8-15-90	72000 U	38400	4300	47600 J-S	4200 J-S	64 UJ-R	3540000	
21	T	3	40	None	S	no	8-15-90								No sample
21	T	3	90	N	T	no	8-15-90								No data-sample dry
27	A	7	40	N	S	no	8-15-90	144000	32600	1670	1820 J-S	9 UJ-R	64 UJ-R	9 4000	
27	A	17	90	N	S	no	8-15-90	42 00	55 00	8360	36000 J-S	9 UJ-R	64 UJ-R	572000	
27	C	4	40	N	S	no	8-15-90								No sample
27	C	14	90	N	S	no	8-15-90	46800	51500	10200	382000 J-S	9 UJ-R	64 UJ-R	3240000	
27	C	14	50	None	S	no	8-15-90								No sample
27	D	16	40	None	S	yes	8-15-90								No data-sample dry
27	D	16	90	None	S	yes	8-15-90								No data-sample dry
27	D	8	50	None	S	no	8-15-90								No data-sample dry
33	A	7	40	N	S	no	8-15-90	485000	23900	4560	5990 J-S	9 UJ-R	64 UJ-R	602000	No data-sample dry
33	A	7	90	N	T	no	8-15-90								No data-sample dry
33	C	12	40	N	T	no	8-15-90	5000 U	21300	1750	2280 J-S	9 UJ-R	64 UJ-R	592000	
33	C	2	90	N	T	yes	8-15-90	5000 U	25200	1950	114000 J-S	9 UJ-R	64 UJ-R	860000	
33	D	8	40	None	S	yes	8-15-90	112000	27600	3950	20300 J-S	9 UJ-R	12 UJ-R	2120000	
33	D	8	90	None	S	no	8-15-90	5000 U	21800	7 UJ	31000 J-S	9 UJ-R	64 UJ-R	2790000	No data
33	D	8	50	N	S	no	8-15-90	61600	25900	2590	33000 J-S	9 UJ-R	64 UJ-R	2560000	
33	I	10	40	N	T	no	8-15-90	27600	21300	1750	2280 J-S	9 UJ-R	64 UJ-R	592000	No data-sample dry
33	I	10	90	N	S	yes	8-15-90	5000 U	25200	1950	114000 J-S	9 UJ-R	64 UJ-R	860000	No data-sample dry
33	T	9	50	N	S	yes	8-15-90	112000	27600	3950	20300 J-S	9 UJ-R	12 UJ-R	2120000	
33	T	9	40	N	S	no	8-15-90	5000 U	21800	7 UJ	31000 J-S	9 UJ-R	64 UJ-R	2790000	No data
33	T	9	90	N	S	no	8-15-90	61600	25900	2590	33000 J-S	9 UJ-R	64 UJ-R	2560000	
2	D	24	50	CCB			8-28-90	5000 U	8570 J-B	840 J-SB	1880 J-SB	9 UJ	64 UJ-R	126 UJ	
7	D	14	150	CCB			8-29-90	5000 U	3090 J-SB	7 UJ	2 UJ	9 UJ	64 UJ-R	126 UJ	
21	T	3	90	CCB			8-29-90	5000 U	4500 J-B	7 UJ	12 UJ	9 UJ-R	64 UJ-R	126 UJ	
27	A	17	40	CCB			8-29-90	5000 U	1100	7 UJ	12 UJ	9 UJ-R	64 UJ-R	126 UJ	
33	D	7	0	CCB			8-29-90	5000 U	1850 J-B	7 UJ	12 UJ	9 UJ-R	64 UJ-R	126 UJ	
2	A	24	150	BFS 2			8-28-90	30500	55300	810 J-SB	12 UJ-R	9 UJ	54 UJ-R	12500	
7	A	4	150	BFS 2			8-29-90	5000 U	8930 J-SB	670	12 UJ	1850 J-S	64 UJ-R	126 UJ	
21	D	13	90	BFS 2			8-29-90	5000 U	7800 J-B	7 UJ	1370	9 UJ-R	64 UJ-R	28	
27	T	17	40	BFS 2			8-29-90	5000 U	7700	7 UJ	2 UJ	9 UJ-R	64 UJ-R	126 UJ	
33	A	7	0	BFS 2			8-29-90	5000 U	8980 J-B	7 UJ	1630 J-S	9 UJ-R	64 UJ-R	126 UJ	
2	D	24	150	BFS 1			8-28-90	5050	8120 J-B	7 UJ-B	2110 J-S	9 UJ	64 UJ-R	126 UJ	
7	T	14	50	BFS 1			8-29-90	29100	51600 J-SB	910	12 UJ	9 UJ-R	64 UJ-R	19900	
21	A	13	90	BFS			8-29-90	28000	78000	1210	12 UJ	89 UJ-R	64 UJ-R	16800	
27	T	17	40	BFS			8-29-90	5000 U	58000	1010	2 UJ	9 UJ-R	64 UJ-R	2000	
33	A	7	40	BFS 1			8-28-90	27600	51800	850	12 UJ	9 UJ-R	64 UJ-R	19700	
2	A	24	150	BB			8-28-90	5600	2420 J-B	7 UJ-B	360 J-SB	9 UJ	64 UJ-R	28	
7	A	4	150	BB			8-29-90	5000 U	2250 J-SB	7 UJ	12 UJ	9 UJ-R	64 UJ-R	126 UJ	
21	T	3	90	BB			8-29-90	5000 U	4500 J-B	7 UJ	12 UJ	9 UJ-R	64 UJ-R	126 UJ	
27	A	17	40	BB			8-29-90	5000 U	3830 J-B	7 UJ	12 UJ	9 UJ-R	64 UJ-R	126 UJ	
33	A	7	40	BB			8-29-90	5000 U	870 J-B	7 UJ	12 UJ	9 UJ-R	64 UJ-R	126 UJ	
2	A	24	150	R			8-28-90	5000 U	1500 J-B	7 UJ	12 UJ	9 UJ-R	64 UJ-R	25	
7	A	4	50	R			8-29-90	05000 U	23000 J-S	3600 J-SB	2 UJ-R	9 UJ	64 UJ-R	5050000	
33	A	7	40	R			8-29-90	226000	22100 J-S	4400	14000 J-S	9 UJ-R	64 UJ-R	382000	
										3398	7750 J-S	9 UJ-R	64 UJ-R	573000	

STARS 1991 Pore Water Cations Results (ug/l)

Site	Trt	Rpl	Depth (cm)	Sample Type	Material Type	Amended	Sample Date	Al	AsJ	AsS	Cd	Cu	Ca	Fe	Pb	Mg	Mn	K	Na	Zn	pH	Eh	SC (mmhos)	Comments
7	A	6	40	N	S	no	7-16-91														8.78	154	2.53	Insufficient sample
7	A	18	90	N	T	no	7-16-91	136000	85800	3800	4200	68800 J-E	84400	1140000	144	35700	296000	424 U	182000	1270000	2.29	637	9.70	DFA16-90
7	C	17	40	N	S	no	7-16-91	21	4 U	94.0	3.1	04 J-E	8030	237	1 U	964	675	3730	120000	334	6.63	305	0.58	
7	C	7	90	N	S	no	7-16-91	3450	4 U	4 U	107	27200 J-E	7500	121	29	2 40	16500	2690	64400	34200	4.72	372	0.83	
7	C	7	150	N	S	no	7-16-91	17	4 U	12.0	98.2	5250 J-E	58000	7 U	4.8 J-E	20 00	46500	10500	54000	34300	8.42	178	57	
7	O	4	40	N	T	yes	7-16-91	357	4	320	7.8	202 J-E	15600	146	2.5	2280	830	10300	296000	1120	7.3	197	38	
7	O	4	90	N	T	yes	7-16-91														0.00	0	0.00	Dry no sample
7	O	4	150	N	S	no	7-16-91	90.0 J	4 U	20.0	2.0	1.0 J-BE	07000	7 U	1.0 U	14600	1 U	8050	117000	377	7.29	206	1.01	
7	I	18	40	N	S	yes	7-16-91	20.0 U	4 U	292	14.9	103 J-E	15100	7 U	2.4 J-E	6E 0	4570	3360	8 900	3000	7.78	268	0.47	
7	I	18	90	N	S	yes	7-16-91	20.0 U	4	140	131	10000 J-E	46700	7 U	2 t	4270	24900	3880	71600	38700	E 50	314	0 64	
7		8	50	N	S	no	7-16-91	27.0	148	86.0	2.0	10.2 J-BE	40000	24500	0 UJ-E	9900	69500	8490	33600	1050	6.37	131	1 09	
7	T	3	40	N	S	no	7-16-91	121	4 U	8.0	500	36000 E	7 000	7 U	3470	25000	273000	5700	833000	3430000	5.75	177	2.52	
7	T	13	90	N	S	no	7-16-9	26.9	4 U	8.0	25.8	142 J-E	58000	7 U	1 1	25600	374	5700	1560 50	3990	8.50	70	1 43	
21	A	5	40	N	T	no	7-17-91	63.1 J-E	38.8	4.8 0	4 Z	3230 J-E	448000 J-E	7	152	360000 J-E	2 8000 J-E	24300	261000	86700 J-E	6 53	46	5 79	
21	A	5	90	N	T	no	7-17-91	2.0 U-E	4 U	260	5 5	8.7 J-E	48 000 J-E	7 U	1 0 U	82 00 J-E	985 J-E	10800	205000	1100 J-E	7 3	54	3.26	
21	C	18	40	N	T	no	7-17-91	397 J-E	26	4.0	470	42300 J-E	416000 J-E	40.9	693	265000 J-E	724000 J-E	21800	290000	856000 J-E	5 77	27	6 90	
21	C	8	90	N	S	no	7-17-91	22.9 J-E	6	12	20.4	578 J-E	556000 J-E	7 U	7 3	137000 J-E	3670 J-E	33 33	199000	8930 J-E	6 76	65	3 90	
21	C	8	150	N	S	no	7-17-91														7 86	22	0 00	Insufficient sample
21	D	7	40	N	T	yes	7-17-9	43 6 J-E	6	304	39 1	238 J-E	336000 J-E	7 U	1 0 UJ-E	94 0000 J-E	198000 J-E	7800	902000	9800 J-E	7 55	39	13 58	
21	D	7	90	N	T	yes	7-17-91	23.1 J-E	6	14.0	159	641 J-E	44 000 J-E	7 U	1 0 U	25 000 J-E	12 000 J-E	14500	357000	46300 J-E	6 77	54	5 88	
21	D	17	50	N	S	no	7-17-91	20.0 UJ-E	4 U	60.0	4 0	105 J-E	42000 J-E	7 U	5 0 U	25800 J-E	4 J-E	8370	97200	612 J J-E	7 5	53	1 21	
21		6	40	N	T	yes	7-17-91	53 J-E	30.3	4 0	656	5410 J-E	372000 J-E	7 U	6 J-E	766000 J-E	589000 J-E	22200	987000	875000 J-E	5 56	22	13 50	
21		8	90	N	T	yes	7-17-91	20.0 UJ-E	4 U	50	5 6	37.3 J-E	362000 J-E	7 U	0 U	2 4000 J-E	233 J-E	18200	778000	195 J-E	6 94	1	5 54	
21		6	50	N	S	no	7-17-91	30.2 J-E	4 U	560	7 7	80.9 J-E	468000 J-E	14 5	1 0 U	7300 J-E	2 4 J-E	2610	42 1000	65 8 J-E	5 61	40	4 44	
21	T	3	40	N	S	no	7-17-91	20.0 UJ-E	4 U	54.0	136	243 J-E	574000 J-E	7 U	1 0 U	125000 J-E	31400 J-E	5300	33000	4203 J-E	6 60	24	4 02	
21	T	13	90	N	T	no	7-17-91	20.0 UJ-E	4 U	5 4	2 8	27 5 J-E	286000 J-E	7 U	1 0 U	68500 J-E	2 9 J-E	7460	09000	471 J-E	7 12	68	5 07	
27	A	17	40	N	S	no	7-16-91	40.8	4 UJ	46.0	59.7	23 J-E	32 000	11 9	1 0 UJ-E	52100	2 2	7540	342000	43500	6 79	27	4 40	
27	A	7	90	N	S	no	7-16-91	4.21	4 UJ	68.0	2 2	54 J-E	105000	29.0	0 U	18900	23.0	7689	318000	254	7 55	53	2 05	
27	C	14	40	N	S	no	7-16-91	0	4 U	38.0	6 8	142 J-E	485000	80 8	2 4 J-E	152000	266	20900	892000	947	6 93	30	8 07	Low volume 30 ml?
27	C	14	90	N	S	no	7-16-91	549	4 UJ	58.0	24 1	288 J-E	451000	16 8	9 7	55300	3 7	30700	1200000	45500	6 32	72	8 74	
27	C	14	50	N	S	no	7-16-91																	Insufficient Sample
27	D	16	40	N	S	yes	7-16-9																	Dry-no sample
27	D	16	90	N	S	yes	7-16-9																	Dry-no sample
27	D	6	150	N	S	no	7-16-91																	Dry-no sample
27	X	13	40	N	S	no	7-16-91																	Dry-no sample
27	X	13	90	N	S	no	7-16-91																	Dry-no sample
33	A	7	40	N	S	no	7-16-91	1590 J-E	4 UJ	4 U	132	22700 J-E	368000 J-E	115	80 2	264000 J-E	19100 J-E	178000	706000	55700 J-E	5 13	15	6 83	
33	A	7	90	N	S	no	7-16-91	20.0 UJ-E	4 UJ	17.2	3 5	26 3 J-E	135000 J-E	7 U	1 0 U	58400 J-E	5 3 J-E	67700	77000	23 0 J-E	7 47	25	1 42	
33	C	12	40	N	T	no	7-16-91	43400	4 UJ	4 U	759	268000	429000	435	162	235000	254000	46900	223000	357000	5 67	111	5 82	
33	C	12	90	N	S	no	7-16-91	20.0 U	4 UJ	54	2 8	24 3	233000	7 U	1 0 U	72100	8 6	27200	152000	62 1	7 40	132	2 14	
33	C	12	150	N	S	no	7-16-91	22.4	4 UJ	36 0	2 0	20 7	169000	8 4	1 0 U	32500	2 3	6500	62600	21 6	7 38	03	1 13	
33	D	8	40	N	S	yes	7-16-91	41.8	4 U	7 0	4 0	200	498000	7 U	0 UJ-E	518000	18 0	32800	494000	117	7 85	88	0 82	Low volume 30 ml?
33	D	8	90	N	S	yes	7-16-91	20.0 U	4 U	42 0	2 8	10 3	318000	7 U	1 0 U	66400	3 6	14300	48900	173	7 35	40	99	
33	D	8	150	N	S	no	7-16-91	22 2	4 U	44 0	2 0	16 1	5 500	8 4	1 0 UJ-E	12100	10 7	6250	485000	203	7 58	42	2 65	
33		10	40	N	S	yes	7-16-9	34800	4 U	4 U	652	95700	443000	412	404	155000	59000	37300	168000	114000	3 58	19	4 78	
33	I	10	90	N	S	yes	7-16-91	20.0 UJ	4 U	8	2 0	8 1	1 10000	7 U	1 0 UJ-E	62300	8 2	72000	206000	11 5	7 82	43	2 03	
33	I	10	150	N	S	no	7-16-91	20.0 UJ	4 U	64 0	2 0	5 2	150000	7 U	1 0 UJ-E	34100	1 U	22900	49200	26 2	7 65	50	0 09	
33	T	9	40	N	T	no	7-16-91	46800	4 U	4 UJ	635	54300	469000	225	33 J-E	260000	39900	2 200	34100	68800	3 89	41	3 98	
33	T	9	90	N	S	no	7-16-91	20.0 U	4 U	4 0	359	1200	460000	7 U	1 0 UJ-E	162000	6620	42200	577000	112000	6 39	11	5 51	

STARS 1991 Pore Water Cations Results (ug/l)

...	Trt	Plot	Depth (cm)	Sample Type	Material Type	Amended	Sample Date	Al	As3	As5	Cd	Cu	Ca	Fe	Pb	Mg	Mn	K	Na	Zn	pH	Eh	SC (mmhos)	Comments
...	C	17	150	CCB	QC		7-16-91	20.0 U	4 U	4 U	2.0	5.6 J-E	4.6	7 U	1.0 U	30.0 U	1 U	424 U	596	5 U				
21	A	15	90	CCB	QC		7-17-91	20.0 UJ-E	4 U	4 U	2.0	2.0 UJ-E	91.3 J-E	7 U	1.0 U	30.0 UJ-E	1.0 U	424 U	601	5 UJ-E				Cross-ctmt blank
27	A	17	90	CCB	QC		7-16-91	20.0 U	4 U	4 U	2.0	2.0 U	53.7	7 U	1.0 U	30.0 U	1.0 U	424 U	633	5 U				Cross-ctmt blank
33	C	12	150	CCB	QC		7-16-91	20.0 U	4 U	4 U	2.0	2.0 U	57.3	7 U	1.0 UJ-E	33.1	1.0 U	437	554	5 U				Cross-ctmt blank
7	C	17	150	BFS 2	QC		7-16-91	20.0 U	4 U	4 U	2.0	2.0 UJ-E	20300	8.9	1.0 U	4880	1.5	4640	20200	5 U				EPA WP 285
2	A	15	90	BFS 2	QC		7-17-91	20.0 UJ-E	4 U	4 U	2.0	2.0 UJ-E	19900 J-E	8.1	1.0 U	4880 J-E	1.0 UJ-E	4480	20200	5 UJ-E				WP 1288 EPA
27	A	17	90	BFS 2	QC		7-16-91	20.0 U	4 U	4 U	2.0	2.0 U	20200	9.2	1.0 U	4880	0 U	4820	20400	5 U				WP 1288 EPA
33	C	12	90	BFS 2	QC		7-16-91	24.2	4 U	4 U	2.0	2.0 U	20200	9.2	1.0 U	4770	1.0 U	4630	9600	21.2				WP 288 EPA
7	C	7	150	BFS 1	QC		7-16-91	54.1	4 U	106	25.9	0.9 J-E	126	110	85.9	30.0 U	115	424 U	919	122			-	EPA WP 287
2	A	5	90	BFS 1	QC		7-17-91	496 J-E	4 U	90.0	27.6	11.5 J-E	65.9 J-E	103	80.6	30.0 UJ-E	0.0 J-E	424 U	782	107 J-E			-	WP 287 EPA
27	A	17	90	BFS 1	QC		7-16-91	523	4 U	105	27.0	0.2	62.3	109	88.4	30.0 J	101	424 U	808	116				WP 287 EPA
33	C	12	150	BFS 1	QC		7-16-91	310	4 U	104	27.2	95.6	63.6	106	81.2	30.2	97.6	519	778	107			-	WP 287 EPA
7	C	17	30	BB	QC		7-16-91	20.0 U	4 U	4 U	2.0	2.0 UJ-E	58.4	7 U	1.0 U	30.0 U	1.0 J	424 U	696	5 U				Field bottle blank
2	A	15	90	BB	QC		7-17-91	20.0 UJ-E	4 U	4 U	2.0	2.0 UJ-E	74.5 J-E	7 U	0 U	30.0 UJ-E	1.0 U	424 U	643	5 UJ-E				Field bottle blank
27	A	17	90	BB	QC		7-16-91	30.0 U	4 U	4 U	2.0	2.0	51	7 U	1.0 U	30.0 U	1.0 U	424 U	618	5 U				Field Bottle Blank
33	C	12	150	BB	QC		7-16-91	20.0 U	4 U	4 U	2.0	2.0	58.6	7 U	1.0 UJ-E	30.0 U	1.0 U	424 U	594	5 U			-	Field bottle blank
7	C	7	30	R	S		7-16-91	120	4 U	4.0	99.2	7.290 J-E	158000	7 U	4.8	20800	46700	10600	112000	34300				Field replicate
2	A	5	90	R	S		7-17-91	20.0 UJ-E	4 U	3.52	4.4	87.5 J-E	447000 J-E	7 U	1.0	75000 J-E	894 J-E	9250	184000	1020 J-E				Field replicate
33	C	2	30	R	S		7-16-91	20.0 U	4 U	28.0	2.0	19.6	65000	7 U	1.0 U	31700	2.5	10300	40700	22.5				Field replicate

STARS 1991 Pore Water Anions Results (ug/l)

Site	Trt	Plot	Depth (cm)	Sample Type	Material Type	Amended	Sample Date	ALK		Cl		F		No3		No2		Po4		SO4		Comments
7	A	15	40	N	S	no	9-5-91		ISv	1600	J-S	5200		6100	J-D	50	U	380	UJ-B	473000		Small sample
7	A	16	90	N	T	no	9-5-91	1000	UJ-S	520000	J-D	8800		338000	J-D	50	U	38200	UJ-B	19200000		
7	C	7	40	N	S	no	9-5-91		ISV	5100	J-D	1300		410	J-BD	150	U	1900	UJ-B	239000		Small sample
7	C	17	90	N	S	no	9-5-91	1100	J-S	2000	J-D	6300		127000	J-D	210		380	UJ-B	489000		
7	C	17	150	N	S	no	9-5-91	148000	J-S	47800	J-D	7500		8800	J-D	1800		380	UJ-B	623000		
7	D	14	40	N	T	yes	9-4-91	46600	J-S	6600	J-D	1800		30	UJ-B	50	U	380	UJ-B	289000		
7	D	14	90	N	T	yes	9-5-91															No Sample
7	D	14	150	N	S	no	9-5-91	144000	J-S	63700	J-D	5600		320	J-BD	50	U	380	UJ-B	308000		
7	I	18	40	N	S	yes	9-5-91															Very Small Sample
7	I	8	90	N	S	yes	9-5-91	53000		4100		2100		4200	J-S	50	U	480	UJ-B	298000		
7		18	150	N	S	no	9-5-91	72100		10400		4200		1600	J-S	50	U	560	UJ-B	381000		
7	T	13	40	N	S	no	9-4-91	31800	J-S	28500	J-D	3900		11500	J-D	140		3900	UJ-B	1050000		
7	T	13	90	N	S	no	9-4-91	127000	J-S	36300	J-D	5100		9300	J-D	50	U	3900	UJ-B	457000		
21	A	5	40	N	S	no	9-4-91															No Sample
2	A	15	90	N	T	no	9-4-91	240000		29800		1400	J-D	14500		230		50	U	913000		
21	C	18	40	N	T	no	9-4-91	25300		122000		98	J-D	89000		240		47800	UJ-B	2620000		
21	C	18	90	N	S	no	9-4-91	297000		57700		550	J-D	89000		50	U	50	U	1520000		
21	C	8	150	N	S	no	9-4-91															No Sample
21	D	17	40	N	T	yes	9-4-91															No Sample
21	D	17	90	N	T	yes	9-4-91															No Sample
21	D	17	150	N	S	no	9-4-91	117000		31000		170	J-D	870	J-B	50	U	50	U	376000		
21	I	14	40	N	T		9-4-91															No Sample
21		4	90	N	T	yes	9-4-91		ISV	172000		9500	J-D	132000		50	U	50	J	530000		
21		14	150	N	S	no	9-4-91	193000		15600	J-B	900	J-D	8 00	J-B	50	U	50	U	566000		
21	T	13	40	N	S	no	9-4-91															No Sample
21	T	13	90	N	T	no	9-4-91		SV	37200		1200	J-D	17800		50	U	50	U	714000		
27	A	17	40	N	S	no	9-4-91															No Sample
27	A	19	90	N	S		9-4-91		ISV	60600		800	J-D	51600		50	U	50	U	410000		
27	C	14	40	N	S	no	9-4-91															No Sample
27	C	14	90	N	S	no	9-4-91		SV	293000		25000	J-D	132000		100	U	47800	UJ-B	1520000		Small Sample
27	C	14	150	N	S	no	9-4-91															No Sample
27	D	16	40	N	S	yes	9-4-91															No Sample
27	D	16	90	N	S	yes	9-4-91															No Sample
27	D	6	150	N	S	no	9-4-91															No Sample
27	X	13	40	N			9-4-91															No Sample
27	X	13	90	N			9-4-9															No Sample
33	A	07	40	N	S	no	9-4-91															No Sample
33	A	07	90	N	S	no	9-4-91	265000		24500		500	UJ-D	5900	J-B	50	U	50	U	3100000	J-B	
33	C	12	40	N	T	no	9-4-91	1000	UJ-S	59300	J-D	21800		4100	J-BD	150		50	J	3180000		
33	C	12	90	N	S	no	9-4-9	201000	J-S	10000	J-D	2100		16100	J-BD	50		390		464000		
33	C	12	150	N	S	no	9-4-91	165000	J-S	7300	J-D	460			J-BD	50		390		288000	J-B	
33	D	08	40	N	S	yes	9-4-91															No Sample
33	D	08	90	N	S	yes	9-4-91		ISv	15400		500	J-D	1400	J-B	50	U	50	U	461000		
33	D	08	150	N	S	no	9-4-91	165000		25400		1700	J-D	7200	R-C	130		50	U	494000		
33		10	40	N	T	yes	9-4-91															No Sample
33		10	90	N	S	yes	9-4-91	174000	J-S	13800	J-D	4400		11400	J-BD	50	U	50	U	543000		
33		10	150	N	S	no	9-4-91	93300	J-S	11 00	J-D	200		8500	J-BD	50	U	50	U	279000	J-B	
33	T	09	40	N	S	no	9-4-91	1000	UJ-D	450	J-D	7400		5700	R-C	50	U	4200		2420000		
33	T	09	90	N	S	no	9-4-91	53000	J-S	13400	J-D	2600		41 00	J-D	50	U	50	J	2260000		
7	C	17	150	BFS-			9-5-91	1000	U	25600		50	U	84600	J S	50	U	6700	J-S	210		ERA #9937
7	C	17	150	BB			9-5-91	1100		50		50	U	190	UJ-B	50	U	480	UJ	210		Bottle Blank
7	C	17	150	R			9-5-91	106000	J-S	67400	J-D	6700		7900	J-D	00	U	380	UJ	575000		
7	C	17	150	BFS-2			9-5-91	244000		173000		490		160	UJ-B	1250		480	UJ	213000		ERA #9937
21	D	17	150	BFS-2			9-4-91	261000		231000		91	J-D	1200	J-B	500	U	50	U	266000		ERA #9937
2	D	17	150	R			9-4-91	123000		27700		210	J-D	970	J-B	50	U	50	U	382000		Blind Field Replicate
2	D	17	150	BFS-1			9-4-91	1000	U	38800		50	UJ-D	12700		50	U	550		200	U	ERA #9937
21	D	17	150	BB			9-4-91	1100		4800	J-B	50	UJ-D	2200	J-B	50	U	50	U	200	U	Bottle Blank
27	A	19	90	BB			9-4-91	21200	J-B	50	U	50	UJ-D	4000	J-B	50	U	50	U	200	U	Bottle Blank
27	A	19	90	BFS-2			9-4-91	259000		197000		50	UJ-D	5100	J-B	100	U	54	U	245000		ERA #9937
27	A	19	90	BFS-1			9-4-91	000	J-B	390		290	J-D	1600	J-B	50	U	4500		200	U	ERA #9937
33	D	08	150	R			9-4-91	142000		17600		1700	J-D	6900	R-C	130		50	U	456000		Blind Field Replicate
33	D	08	150	BFS-2			9-4-91	276000	J-S	193000	J-D	3200		470	R-C	500	U	50	U	252000	J-B	ERA #9937
33	D	08	150	BFS-1			9-4-91	1000	UJ-S	29000	J-D	50	U	6900	R-C	11100		5200		200	UJ-B	ERA #9937
33	D	08	150	BB			9-4-91	1100	J-S	50	UJ-D	50	U	4100	J-BD	50	U	50		77100	J-B	Bottle Blank

STARS 1991 Pore Water Anions Results (ug/l)

Site	Trt	Plot	Depth (cm)	Sample Type	Material Type	Amended	Sample Date	ALK		Cl		F		No3		No2		Po4		SO4		Comments
7	A	16	40	N	S	no	9-5-91		ISV	1600	J-S	5200		6100	J-D	50	U	380	UJ-B	473000		Small sample
7	A	16	90	N	T	no	9-5-91	1000	UJ-S	520000	J-D	8800		336000	J-D	50	U	38200	UJ-B	19200000		
7	C	17	40	N	S	no	9-5-91		ISV	5100	J-D	1300		410	J-BD	150	J	1900	UJ-B	239000		Small sample
7	C	17	90	N	S	no	9-5-91	1100	J-S	2000	J-D	6300		127000	J-D	210		380	UJ-B	489000		
7	C	17	150	N	S	no	9-5-91	148000	J-S	47600	J-D	7500		8800	J-D	1800		380	UJ-B	623000		
7	D	14	40	N	T	yes	9-4-91	45600	J-S	6600	J-D	800		30	UJ-B	50	U	380	UJ-B	289000		
7	D	14	90	N	T	yes	9-5-91															No Sample
7	D	14	150	N	S	no	9-5-91	144000	J-S	63700	J-D	5600		320	J-BD	50	U	380	UJ-B	308000		
7		18	40	N	S	yes	9-5-91															Very Small Sample
7		18	90	N	S	yes	9-5-91	53000		4100		2100		4200	J-S	50	U	480	UJ-B	298000		
7		18	150	N	S	no	9-5-91	72100		10400		4200		1800	J-S	50	U	560	UJ-B	381000		
7	T	3	40	N	S	no	9-4-91	31800	J-S	28500	J-D	3900		1500	J-D	140		3900	UJ-B	1060000		
7	T	3	90	N	S	no	9-4-91	127000	J-S	36300	J-D	5100		9300	J-D	50	U	3900	UJ-B	457000		
21	A	15	40	N	S	no	9-4-91															No Sample
21	A	15	90	N	T	no	9-4-91	240000		29800		1400	J-D	14500		230		50	U	913000		
21	C	18	40	N	T	no	9-4-91	25300		122000		98	J-D	89000		240		47800	UJ-B	2620000		
21	C	18	90	N	S	no	9-4-91	297000		57700		550	J-D	89000		50	U	50	U	1520000		
21	C	18	150	N	S	no	9-4-91															No Sample
21	D	17	40	N	T	yes	9-4-91															No Sample
21	D	17	90	N	T	yes	9-4-91															No Sample
21	D	17	150	N	S	no	9-4-91	117000		3 000		170	J-D	870	J-B	50	U	50	U	376000		
21		14	40	N	T		9-4-91															No Sample
21		14	90	N	T	yes	9-4-91		SV	172000		9500	J-D	132000		50	U	50	U	1530000		
21		14	150	N	S	no	9-4-91	193000		15600	J-B	900	J-D	8100	J-B	50	U	50	U	566000		
21	T	13	40	N	S	no	9-4-91															No Sample
21	T	13	90	N	T	no	9-4-91		SV	37200		1200	J-D	17800		50	U	50	U	714000		
27	A	17	40	N	S	no	9-4-91															No Sample
27	A	19	90	N	S		9-4-91		ISV	60500		600	J-D	61600		50	U	50	U	410000		
27	C	4	40	N	S	no	9-4-91															No Sample
27	C	4	90	N	S	no	9-4-91		ISV	293000		25000	J-D	132000		100	U	47800	UJ-B	1520000		Smal Sample
27	C	4	150	N	S	no	9-4-91															No Sample
27	D	6	40	N	S	yes	9-4-91															No Sample
27	D	6	90	N	S	yes	9-4-91															No Sample
27	D	16	150	N	S	no	9-4-91															No Sample
27	X	13	40	N			9-4-91															No Sample
27	X	13	90	N			9-4-91															No Sample
33	A	07	40	N	S	no	9-4-91															No Sample
33	A	07	90	N	S	no	9-4-91	265000		24500		500	UJ-D	5900	J-B	50	J	50	U	310000	J-B	
33	C	12	40	N	T	no	9-4-91	1000	UJ-S	59300	J-D	21800		4100	J-BD	150		50	U	3180000		
33	C	12	90	N	S	no	9-4-91	201000	J-S	10000	J-D	2100		6100	J-BD	50		390		464000		
33	C	12	150	N	S	no	9-4-91	165000	J-S	7300	J-D	980		5700	J-BD	50		390		288000	J-B	
33	D	08	40	N	S	yes	9-4-91															No Sample
33	D	08	90	N	S	yes	9-4-91		ISV	15400		1500	J-D	1400	J-B	50	U	50	U	461000		
33	D	08	150	N	S	no	9-4-91	165000		25400		1700	J-D	7200	R-C	130		50	U	494000		
33		10	40	N	T	yes	9-4-91															No Sample
33		10	90	N	S	yes	9-4-91	174000	J-S	13800	J-D	4400		11400	J-BD	50	U	50	U	543000		
33		10	150	N	S	no	9-4-91	93300	J-S	11 00	J-D	200		8500	J-BD	50	U	50	U	279000	J-B	
33	T	09	40	N	S	no	9-4-91	1000	UJ-D	450	J-D	7400		5700	R-C	50	U	4200		2420000		
33	T	09	90	N	S	no	9-4-91	53000	J-S	13400	J-D	2600		41100	J-D	50	U	50	U	2260000		
7	C	17	150	BFS-1			9-5-91	1000	J	25600		50	U	84600	J-S	50	U	6700	J-S	210		ERA #9937
7	C	17	150	BB			9-5-91	1100		50		50	U	190	UJ-B	50	J	480	UJ-B	210		Bottle Blank
7	C	17	150	R			9-5-91	106000	J-S	67400	J-D	6700		7900	J-D	100	U	380	UJ-B	575000		
7	C	17	150	BFS-2			9-5-91	244000		173000		490		160	UJ-B	1250		480	UJ-B	213000		ERA #9937
21	D	17	150	BFS-2			9-4-91	261000		231000		81	UJ-D	1200	J-B	500	U	50	U	266000		ERA #9937
21	D	17	150	R			9-4-91	123000		27700		210	J-D	970	J-B	50	U	50	U	382000		Blind Field Replicate
21	D	17	150	BFS-1			9-4-91	1000	U	38800		50	UJ-D	12700		50	U	650		200	U	ERA #9937
21	D	17	150	BB			9-4-91	1100		4800	J-B	50	UJ-D	2200	J-B	50	U	50	U	200	U	Bottle Blank
27	A	19	90	BB			9-4-91	21200	J-B	50	U	50	UJ-D	4000	J-B	50	U	50	U	200	U	Bottle Blank
27	A	19	90	BFS-2			9-4-91	259000		197000		50	UJ-D	5 00	J-B	100	U	54	J	245000		ERA #9937
27	A	19	90	BFS-1			9-4-91	000	J-B	390		290	J-D	1600	J-B	50	U	4500		200	U	ERA #9937
33	D	08	150	R			9-4-91	142000		17600		1700	J-D	6900	R-C	130		50	U	456000		Blind Field Replicate
33	D	08	150	BFS-2			9-4-91	276000	J-S	193000	J-D	3200		470	R-C	500	U	50	U	252000	J-B	ERA #9937
33	D	08	150	BFS-1			9-4-91	000	UJ-S	29000	J-D	50	J	6900	R-C	11100		5200		200	UJ-B	ERA #9937
33	D	08	50	BB			9-4-91	1100	J-S	50	UJ-D	50	U	4100	J-BD	50	U	50		77100	J-B	Bottle Blank

STARS 1992 Pore Water Cations Results (ug/l)

Site	Trt	Plot	Depth (cm)	Sample Type	Material Type	Amended	Sample Date	Al		As(III)		As(V)		Cd	Cu	Ca	Fe		Pb		Mg	Mn	K		Na	Zn	pH	Eh (mv)	SC (mmhos)	Comments
07	A	16	40	N	S	no	4/30/92																				8.58	553.9	3.36	No ab sample
07	A	16	90	N	T	no	4/30/92	217000		120000		37000		4380	1020000	123000	740000		88		59100	582000	346	J	206000	1890000	2.69	1027	10.85	
07	C	17	40	N	S	no	4/30/92	-		-		-		-													5.38	783.3	0.88	No tap sample
07	C	17	90	N	S	no	4/30/92	4110		2	U	16.2		166	37000	16000	178	JB	125		3730	32200	2300		66700	49700	4.36	836	0.87	
07	C	17	150	N	S	no	4/30/92	184	JB	2	U	11.8		53.5	2340	139000	24.6	JB	5.1	J	21300	26700	7820		15 000	8100	8.06	734	1.83	
07	D	14	40	N	T	yes	4/30/92	58.7	JB	2	U	17.8		9.5	102	17500	13.6	JB	1	U	2820	1670	3330		28400	2070	6.93	629.8	1.47	
07	D	4	90	N	T	yes	4/30/92	162	JB	2	U	205		16.3	599	16000	35.7	JB	3.8	J	14000	82.1	7 0		439000	1400	7.13	616	2.85	
07	D	4	150	N	S	no	4/30/92	57.5	JB	2	U	16.6		2.2	9.5	41000	30.7	JB	7		20700	9	7000		21900	503	7.33	614.4	.29	
07	I	18	40	N	S	yes	4/30/92	-		-		-		-													8.49	888.4	0.78	
07	I	8	90	N	S	yes	4/30/92	61.5	JB	2	U	5.6		2.11	17500	68500	13.3	JUB	4.2		7230	41600	3110		56800	61400	5.5	741.2	0.95	No ab sample
07	I	18	50	N	S	no	4/30/92	83.3	JB	188		40.8		2.2	35.7	153000	31000		1	J	0000	79400	7270		25300	1370	5.91	532.8	1.7	
07	T	13	40	N	S	no	4/30/92	551		2	U	6		1120	27200	148000	3.3	JUB	2560		23000	130000	8850		86100	272000	5.58	704.8	2.05	
07	T	13	90	N	S	no	4/30/92	83.1	JB	2	U	8.4		38.7	541	147000	28.4	JB	7.2		23700	66.4	6750		14 000	4890	5.4	658	1.42	
21	A	15	40	N	S	no	4/29/92	117	JB	13.2	JB	2.8		198	1030	41 0 0	35.6		22.5		259000	46000	15300		2 2000	54900	7.05	606.3	4.19	
21	A	5	90	N	T	no	4/29/92	45.3	JB	3	U	171		31	67	302000	43.7		1	U	52600	1280	5010		119000	918	5.93	598	2.02	
21	C	18	40	N	T	no	4/29/92	-		-		-		-																Dry No sample
21	C	18	90	N	S	no	4/29/92	66.2	JB	2.4	JB	2	U	5	239	517000	74.5		1	U	135000	180	25000		178000	4130	7.12	595.4	3.31	
21	C	8	50	N	S	no	4/29/92	-		-		-		-																Dry No sample
21	D	17	40	N	T	yes	4/29/92	355		11.6	JB	57.4		105	204	289000	34.5		5.8		1380000	565000	5630		449000	65800	8.75	586.8	12.26	
21	D	17	90	N	T	yes	4/29/92	87.1	JB	14	JB	12.8		134	387	430000	53.9		1	U	216000	86200	9840		207000	40500	8.62	595.4	4.02	
21	D	17	50	N	S	no	4/29/92	42.6	JB	2	U	2	U	3.5	58.8	126000	25.3		1	U	27400	84.9	5410		78000	388	7.15	588.1	1.08	
21		14	40	N		yes	4/29/92	-		-		-		-													6.65	506	9.87	Not enough sample
21		14	90	N	T	yes	4/29/92	111	JB	7.6	JB	804		3.4	87.2	287000	81.5		1.5		170000	770	1800		559000	373	7.82	554.7	4.88	Small sample volume
21	T	3	40	N	S	no	4/29/92	57.5	JB	3.2	JB	460		2.2	45.5	36400	16.6			J	4800	9.7	880	JB	414000	23.4	JB 8.3	542.4	1.98	
21	T	3	90	N	T	no	4/29/92	79.3	JB	2	U	80		44	61.7	512000	83		1.5	J	89000	5790	4500		98200	4140	6.63	579.1	2.84	
27	A	17	40	N	S	no	4/29/92	141	JB	2	U	146		8.1	54.2	21 0.0	63.6		1.8		80000	60	5820		9 0000	170	7.34	556.5	2.11	
27	A	7	90	N	S	no	4/29/92	243		2	U	78.2		14.9	303	700 10	55.4		3.9		26800	123	8050		460000	7000	6.02	564.1	3.54	
27	C	4	40	N	S	no	4/29/92	-		-		-		-													5.54	579.9	8.48	No tab sample
27	C	14	90	N	S	no	4/29/92	-		-		-		-													6.52	806.6	6.04	No ab sample
27	C	14	50	N	S	no	4/29/92	205		2	U	128		7.2	85.6	254000	51.7		3.5	J	35300	58.4	5400		1240000	92	7.5	573.4	7.54	Small volume
27	D	16	40	N	S	yes	4/29/92																							Dry No sample
27	D	6	150	N	S	no	4/29/92																							Dry No sample
27	X	3	40	N		no	4/29/92																							Dry No sample
27	X	3	90	N		no	4/29/92																							Dry No sample
33	A	07	40	N	S	no	4/29/92																							Dry No sample
33	A	07	90	N	S	no	4/29/92	69.3	JB	2	U	157		2.2	6.7	106000	51.4	JB	1.5		43800	1	U 43800		49400	18.4	5	701.4	8.49	No ab sample
33	C	2	40	N	T	no	4/29/92	31600		2	U	2	U	1330	164000	389000	232		78.5		20 000	200000	33700		20 0L0	370000	6.85	603.2	1.25	
33	C	2	90	N	S	no	4/29/92	45.4	JB	2	U	140		2.2	30.2	225000	55.6			U	73900	18.4	21500		38000	62.1	6.98	736.8	5.39	
33	C	12	150	N	S	no	4/29/92	39.1	JB	2	U	28.4		2.2	9.3	60000	10			V	32 00	3	6620		53300	57.5	6.87	609.6	2.8	
33	D	08	40	N	S	yes	4/29/92																				6.88	589.1	1.2	
33	D	08	90	N	S	yes	4/29/92	73.9	JB	2	U	36.2		2.2	12.4	2580 0	55.8		1	J	52900	2.7	10800		43400	106	6.54	614.3	1.61	Dry No sample
33	D	08	150	N	S	no	4/29/92	54.5	JB	2	U	38.2		2.2	2.2	370 0	24.4		1	U	8300	34.1	4340		445000	93	7.16	574.4	2.47	
33		0	40	N	T	yes	4/29/92	36300		2.6		2	U	537	84700	433000	306		234		284000	58000	27600		187000	82000	4	726.2	5.12	
33		10	90	N	S	yes	4/29/92	45	JB	2	U	95.6		2.2	5.7	109000	40.8		1	U	67000	8.3	61000		185000	44	7.26	598.1	3.05	
33		0	150	N	S	no	4/29/92	38	JB	2	U	51.6		2.2	10.1	136000	40.5		1	U	31100	3	19000		43100	31.3	6.67	593	1.19	
33	T	09	40	N	T	no	4/29/92	98700		2	U	2	U	571	60300	4260.0	423		27		291000	49700	10100		48800	02000	3.77	739.6	4.58	
33	T	09	90	N	S	no	4/29/92	514	JB	2	U	3		298	903	390000	79		1	U	143000	5870	30400		442000	82800	5.77	580.9	4.73	
07	D	14	150	CCB	QC		4/30/92	20.1		2	U	2	U	2.2	2.2	143	3.3	U	1	U	57.7	J	11	U	346	U 3.6		4.3		
1	D	17	90	CCB	QC		4/29/92	34.9		2	U	2	U	2.2	2.8	150	3.2	U	1	U	63.2		21.7	U	860	319		29.7		Cross contamination blank
27	X	3	90	CCB	QC		4/29/92	18		2	U	2	U	2.2	3.7	229	3.7	U	1	U	122		16	U	600	4.8		8.9		Cross contamination blank
33	C	12	50	CCB	QC		4/29/92	46.5		2	U	2	U	2.2	2.8	220	3.3	U		U	135		11	U	582	4.9		4.7		Cross contamination blank
07	D	4	150	BFS3	QC		4/30/92	44		2	U	2	U	2.2	2.2	5210	2040			U	555		11	U	593	310		487		Blind field standard
21	D	17	90	BFS3	QC		4/29/92	39.5		3.4		2	U	2.2	2.2	4980	2030		1	U	555		3.4	U	1770	1300		514		Blind field standard
27	X	13	90	BFS3	QC		4/29/92	14.4	U	2	U	2	U	2.2	2.2	4840	1920			U	550		11	U	1500	1340		461		Blind field standard
33	C	12	50	BFS3	QC		4/29/92	36.8		2	U	2	U	2.2	2.2	5020	2000		4		585		11	U	1340	5310		474		Blind field standard
07	D	14	150	BFS2	QC		4/30/92	131		2	U	2	U	2.2	2.2	229	52.7		1	U	57.7	U	8.4		351	430		3.3	U	Blind field standard
21	D	17	90	BFS2	QC		4/29/92	140		2	U	2	U	2.2	2.2	210	45.8		1	U	143		38.7		1010	497		189		Blind field standard
27	X	3	90	BFS2	QC		4/29/92	122		2	U	2	U	2.2	2.2	28	58.7		1		71		0.4		1310	493		3.7	U	Blind field standard
33	C	2	150	BFS2	QC		4/29/92	138		2	U	2	U	2.2	2.2	135	57.8		1		75		10.4		57	383		3.3	U	Blind field standard
07	D	4	150	BFS1	QC		4/30/92	32.7		2	U	52		4	50.1	601	3.3	U	47.2		108		1	U	346	U 7.8		3.3	U	Blind field standard
21	D	17	90	BFS1	QC		4/29/92	43.8		2	U	43		8.8	51	327	13.2	U	43.2		209		48.1		1170	539		28.1		Blind field standard
27	X	3	90	BFS	QC		4/29/92	29.4		2	U	48.8		8.4	47.8	178	13.2	U	49.4		90		11	U	754	259		5.3		Blind field standard
33	C	2	50	BFS	QC		4/29/92	31.6		2	U	47.6		8.6	52.3	165	13.3	U	48		79.3		11	U	1000	497		3.3	U	Blind field standard
07	D	14	150	BB	QC		4/30/92	40.6		2	U	2	U	2.2	3.8	245	3.3	U	1		57.7	U	11	U	346	U 7.9		3.3	U	Bottle blank
21	D	17	90	BB	QC		4/29/92	39.4		7		2	U	2.2	2.2	167	3.2	U	1	J	99.1		3.7		999	376		9.5		Bottle blank
27	X	13	90	BB	QC		4/29/92	20		2	U	2	U	2.2	2.4	119	14.3		3.1		57.7	U	2.3		346	U 3.2		4.1		Bottle blank
33	C	12	150	BB	QC		4/29/92	32.8		2	U	2	U	2.2	2.3	32	3.3	U	1	J	62.3		11	U	678	39		3.3	U	Bottle blank
07	D	14	50	R	S	no	4/30/92	64.8	JB	2	U	14		2.2	9.9	145000	27	JB	1	U	21400		1.4		6930	22000		502		Field replicate
21	D	17	90	R	T	yes	4/29/92	85.7	JB	14.6	JB	14.2	J	134	391	428000	80.5		1	U	215000		85800		9800	204000		40300		Field replicate
33	C	12	150	R	S	no	4/29/92	42.7	JB	2	U	29		2.2	21	160000	46.9		1	U	32300		3.2		8620	54700		62.5		Field replicate

STARS 1992 Pore Water Anions Results (ug/l)

Site	Trt	Plot	Depth (cm)	Sample Type	Material Type	Amended	Sample Date	ALK	CL	F	NO3	NO2	PO4	SO4	Comments
07	A	6	40	N	S	no	4/30/92								
07	A	16	90	N	T	no	4/30/92		2800	10000 U	4000 U	4000 U	90	10000000	Dry No sample
07	C	17	40	N	S	no	4/30/92		6500	800	19000	100 U	600	250000	
07	C	17	90	N	S	no	4/30/92		2100	4200	3900	100 U	500 U	450000	
07	C	7	150	N	S	no	4/30/92	127000	25000	5700	160	2000 U		710000	
07	D	16	40	N	T	yes	4/30/92	38000	6400	2000	30000	000 U	380	470000	
07	D	14	90	N	T	yes	4/30/92	28000	4000	3300	65000	4000 U	200	1200000	
07	D	14	150	N	S	no	4/30/92	144000	46000	4600	500	4000 U	380	520000	
07		8	40	N	S	yes	4/30/92								
07		18	90	N	S	yes	4/30/92	21000	4500	1800	3500	100 U		520000	No lab sample
07		18	50	N	S	no	4/30/92								
07	T	3	40	N	S	no	4/30/92	23000	27000	3300	5500	2000 U		1200000	Sample lost
07	T	13	90	N	S	no	4/30/92	120000	46000	4300	200	2000 U	140	600000	
21	A	15	40	N	S	no	4/29/92								
21	A	15	90	N	T	no	4/29/92	205000	21000	1400	12000	1000 U	240	880000	
21	C	18	40	N	T	no	4/29/92								
2	C	8	90	N	S	no	4/29/92	237000	32000	1500	36000	2000 U	110	900000	Dry No sample
21	C	18	50	N	S	no	4/29/92								Dry No sample
21	D	17	40	N	T	yes	4/29/92								Dry No sample
21	D	17	90	N	T	yes	4/29/92	62000	32000	2100	40000	2000 U		2200000	
2	D	7	150	N	S	no	4/29/92	88000	24000	400	500	2000 U	90	460000	
21		14	40	N		yes	4/29/92								
21		14	90	N	T	yes	4/29/92	7 000	60000	3300	49000	1000 U	620	2700000	Dry No sample
21	T	3	40	N	S	no	4/29/92	177000	40000	1800	13000	1000 U	730	760000	
2	T	3	90	N	T	no	4/29/92								
27	A	17	40	N	S	no	4/29/92	141000	36000	1100	12000	000 U	140	100000	Dry No sample
27	A	17	90	N	S	no	4/29/92								
27	C	4	40	N	S	no	4/29/92								Dry No sample
27	C	4	90	N	S	no	4/29/92								Dry No sample
27	C	14	150	N	S	no	4/29/92								Dry No sample
27	D	16	40	N	S	no	4/29/92		71000	3900	120000	2000 U		3300000	Dry No sample
27	D	16	90	N	S	yes	4/29/92								
27	D	6	50	N	S	yes	4/29/92								Dry No sample
27	X	13	40	N		no	4/29/92								Dry No sample
27	X	3	90	N		no	4/29/92								Dry No sample
33	A	07	40	N	S	no	4/29/92								Dry No sample
33	A	07	90	N	S	no	4/29/92		88000	1700	110000	2000 U		3300000	Dry No sample
33	C	12	40	N	T	no	4/29/92	24 000	16000	5200	500	1000 U	150	420000	
33	C	12	90	N	S	no	4/29/92		43000	8000	9900	2000 U	120	3 000000	
33	C	2	150	N	S	no	4/29/92	182000	15000	2500	27000	1000 U	440	880000	
33	D	08	40	N	S	no	4/29/92	160000	5000	1300	4800	1000 U	70	460000	
33	D	08	90	N	S	yes	4/29/92								
33	D	08	150	N	S	yes	4/29/92	202000	14000	1500	600	000 U	2900	610000	Dry No sample
33		10	40	N		no	4/29/92	62000	20000	400	7600	000 U	3000	660000	
33		0	90	N		yes	4/29/92								
33	T	20	150	N	S	yes	4/29/92	255000	10000	3000	1500	1000 U	190	890000	Sample lost
33	T	05	40	N	T	no	4/29/92	96000	14000	3600	3200	000 U	310	430000	
33		09	90	N		no	4/29/92		16000	5600	37000	000 U	90	3000000	
7	D	14	50	CCB	QC	no	4/29/92	42000	4000	2400	36000	1000 U	750	2600000	
21	A	5	90	CCB	QC		6/3/92		100 U		100 U	00 U		100 U	Cross Contamination Blank
21	A	4	150	CCB	QC		6/3/92		00 U		100 U	100 U		00 U	Cross Contamination Blank
33	D	8	50	CCB	QC		6/3/92		00 U		100 U	100 U		00 U	Cross Contamination Blank
7	D	4	50	BFS2	QC		6/3/92				00 U	100 U		100 U	Cross Contamination Blank
21	A	5	90	BFS2	QC		6/3/92		100 U	4900	7400	100 U		69000	Blind field standard
27	C	4	150	BFS2	QC		6/3/92	66000	00 U	5000	7600	00 U		70000	Blind field standard
33	D	8	150	BFS2	QC		6/3/92	7 000	00 U	4800	7900	100 U		69000	Blind field standard
7	D	14	150	BFS	QC		6/3/92	65000		4800	7500	100 U		69000	Blind field standard
21	A	5	90	BFS1	QC		6/3/92		27000		9900	2000 U	13000	100 U	Blind field standard
27	C	4	50	BFS	QC		6/3/92		28000		9900	2000 U	300	36000	Blind field standard
33	D	8	150	BFS	QC		6/3/92		28000		9800	2000 U	300	100 U	Blind field standard
	D	14	50	BB	QC		6/3/92		27000		000 U	1000 U	1300	100 U	Blind field standard
7	A	5	90	BB	QC		6/3/92		100 U		100 U	00 U		00 U	Bottle blank
27	C	4	150	BB	QC		6/3/92		100 U		100 U	100 U		100 U	Bottle blank
33	D	8	150	BB	QC		6/3/92		100 U		100 U	100 U		100 U	Bottle blank
7	D	14	150	P	S		6/3/92				00 U	100 U		100 U	Bottle blank
21	A	5	90	R	T		6/3/92	45000	46000	4600	600	2000 U	410	530000	Field replicate
27	C	4	50	R	S		6/3/92	20000	21000	1400	13000	1000 U	180	880000	Field replicate
33	D	8	150	R	S		6/3/92								Insufficient sample
							6/3/92	164000	2000	1400	7500	1000 U	3000	650000	Field replicate

STARS
PORE WATER CHEMISTRY - pH
1990-1992

Site	Treatment	Plot	Depth (cm)	Sample Type	Sample date 5/2/90	7/24/90	8/13/90	8/27/90	9/25/90	6/19/91	8/19/91	7/2/91	8/20/91	2/4/92	1/23/92	2/27/92	3/27/92	4/29/92	5/14/92	5/27/92	6/3/92	6/17/92
2	A	22	40	N	3.91	3.31	3.53	2.48	3.75	*see												
2	A	22	90	N	5.29	5.1	5.45		4.87	note												
2	C	20	40	N	4.48	4.70	4.42	4.45	4.64													
2	C	20	90	N	5.31	5.28	5.32	5.75	5.88													
2	C	20	150	N	5.43	5.83	5.48	5.82	6.47													
2	D	24	40	N	5.97	4.60	4.83	5.51	5.58													
2	D	24	90	N	5.48	5.72	6.04	5.66	6.08													
2	D	24	150	N	5.57	5.35	4.73	4.75	5.74													
2		23	40	N	4.04	2.68	2.06	2.88	3.13													
2		23	90	N	5.58	5.55	5.90	5.61	6.34													
2		23	150	N	5.74	5.71	6.19	5.86	6.13													
2	F	19	40	N	2.7	2.68	2.65	2.64	2.88													
2	F	19	90	N	5.45	5.34	4.27	5.77	5.94													
2	X	2	40	N	4.88	4.60	3.85	4.61	4.70													
2	X	21	90	N	5.28	5.31	5.4	5.70	5.88													
7	A	16	40	N	6.69	7.50	8.10	8.67		8.56	8.4	8.78		8.40			8.2	6.58	8.35			
7	A	16	90	N		7.23	2.73	2.14	2.14	2.20	2.29	2.29	2.5	1.92	2.08	2.01		2.69	2.3	2.24	2.38	2.2
7	C	17	40	N	6.7	5.08	5.43	6.8	3.76	6.76	5.62	6.53	5.42				7	5.38	7.02	3.78	5.52	7.1
7	C	7	90	N	5.3	4.30	4.08	5.53		6.67	4.40	4.72	4.3				3.38	4.36	4.9	3.85	4.55	4.28
7	C	7	150	N	5.95	6.0	5.87	6.32	5.42	8.77	5.90	8.42	5.81	6.45			5.53	8.06	6.33	6.38	6.31	6.4
7	D	14	40	N	5.68	6.25	6.74	6.98	7.2	7.32	6.54	7.31	7.12	6			6.7	8.93	5.83	7.46	7.31	6.8
7	D	14	90	N	6.49	6.50	6.75	7.05	7.03									7.13	6.43	7.81	7.43	6.58
7	D	14	50	N	6.36	6.32	6.58	6.95	07	5.22	5.62	7.20	6.6	6.78			6.74	7.33	6.45	7.43	7.55	8.66
7		18	40	N	5.9	6.09	6.18	7.08	7.23	7.44	5.8	78	7.16				6.14	8.48	7.18		7.34	
7		8	90	N	5.77	5.4	5.86	5.40	6.43	6.98	5.44	6.50	6.07				5.6	5.51	5.56	5.76	5.61	5.32
7		8	150	N	5.89	5.95	5.73	6.48	6.42	8.52	5.58	6.37	5.78	6.48	6.23	5.79	5.87	5.91	6.07	8.1	5.88	6.08
7	F	2	40	N	5.78	5.56	5.68	6.00	5.79	5.62	5.44	5.75	5.33	5.6	5.07	5.04	5.37	5.58		5.86	6.04	5.59
7		4	90	N	6.37	8.4	8.50	6.88	6	6.68	6.30	8.56	6.41	8.5	6.6	5.98	6.04	8.4	6.34	8.6	6.69	6.26
2	A	5	40	N	6.03	6.32	6.7	6.20		6.52	5.57	6.53		6.55			6.9	05	8.27	6.85	7.16	6.40
21	A	15	90	N	6.80	6.94	7.28	07	7.5	7.4	6.01	7.3	6.50	7.3	7.3	6.8	6.62	8.53	6.83	7.36	7.96	7.1
21	C	8	40	N	5.49	8.02	5.16	5.82	6.08	5.97	4.92	5.77	5.47	5.4			5.34					4.4
21	C	8	90	N	8	6.81	6.80	6.83	6.82		5.84	6.76	6.40	7.07			6.55	7.2	6.69	7.3	6.05	6.58
21	C	8	150	N	5.79	6.23	6.54	6.44	6.16	50	5.24	7.88	7.12	6.5			6.76					
21	D	17	40	N	7.52	7.12		7.50		7.8	6.73	7.55						6.78				
21	D	7	90	N	6.30	6.29	8.85	6.65	6.78	6.87	6.24	8.77	6.07	6.6	6.43	5.38	6.45	6.62	6.67	7.0	6.82	6
21	D	7	50	N	6.57	6.60	7.04	6.98	7.26	7.0	6.17	7.5	6.28	7.03	6.82	6.04	6.5	5.1	6.57	7.34	6.9	6.5
21		14	40	N	6.04	6.35	6.85	6.27		6.27	5.78	5.66		7.05			5.25	6.85	6.58			6.18
21		14	90	N	4.1	7.35		7.73	7.85	7.84	6.45	8.94	6.55	8.2	7.06	6.48	6.84	7.82	7.62	8.21	8.13	78
21		8	50	N	7.0	7.90	8.24	8.6	8.57	8.12	7.02	8.51	8.67	8.55	7.69	7.09	7.4	8.3	7.2	8.0	8.37	8.02
21	F	3	90	N	7.08	8.3	7.50	7.43		5.73	6.6	6.60					5.15	6.63	6.65	7.4		
21	A	7	40	N	5.53	6.16	6.85	6.60	6.24	7.37	8.43	7.2	8.92	7.81			6.72	7.34	7.05	7.7	56	5.6
21	A	7	90	N	6.7	6.02	7.1	7.87	7.72	6.58	5.66	6.78	8.00	6.67	8.47	8.19	6.57	6.02	6.78	6.9		
21	C	14	40	N	7.29		7.74	7.00		7.47	6.37	7.55	6.89	7.34	7.8	6.59	8.85	8.82	7.4			
21	C	4	90	N		7.15	8.32	6.54	6.45	8.13	6.03	6.65					6.22	6.54				
21	C	4	150	N		6.34				8.46	5.92	6.34	6.43	6.62				8.52	6.1	7.2	6.92	6.66
27	D	6	40	N						7.8		6.09	5.33	7	7.39	8.83	8.63	7.51	7.43	7.65	7.85	7.53
27	D	6	90	N																		
27	D	15	50	N	6.84																	
2	X	3	40	N						7.92												
27	X	13	80	N																		
33	A	7	40	N	6.03	5.42	5.67	5.76		4.47	5.23	5.3	4.83									
33	A	7	90	N	5.89	5.69	7.05	7.32	6.76	7.38	6.20	7.47	8.84	7.6	7.22		5.78	5.8	5	5.62	5.08	5.37
33	C	2	40	N	4.2	3.93	4.3	4.06	3.94	3.85	3.75	3.87	3.55	3.98			6.52	6.69	6.85	7.26	7.28	7.39
33	C	4	90	N	5.6	5.58	9	7.58	5.89	38	5.95	43	8.85	7.25	8.66	8.09	4.85	4.24	3.96	4.18	3.97	4
33	C	14	50	N	6.6	6.40	7.40	7.4		7.2	5.42	7.38	8.03	7.5	6.43	6.99	6.88	6.87	6.88	7.11	7.24	7.07
33	D	8	40	N	7.24					7.82	6.58	7.65		7.55	8.5		7.02			7.84		
33	D	8	90	N	8.47	6.72				7.04	8.34	7.35	6.89	7.25	8.72		6.91	8.23	6.54	7.58	7.32	5
33	D	8	50	N	6.53	6.82	7.15	7.24	6.28	7.69	8.90	7.85	7.0	7.53			7.72	8.09	7.18	7.83	7.72	7.78
33		10	40	N	8.46	7.83	4.07	4.05	4.8	3.74	4.25	3.85		4.2				4.58	4.1	4.75	3.93	4.03
33		10	90	N	8.96	5.8	7.42	7.48	5.7	7.54	6.22	7.82		7.1				7.05	7.26	8.9	7.34	7.22
33		9	150	N	8.98	8.7	7.42	7.30	5.78	7.29	8.31	7.85		7.33				7.05	6.67	7.24	7.30	7.34
33	F	8	40	N	4.03	3.83	3.68	3.95	3.80	3.75	4.02	3.89		4.27	3.72	4.83		3.6	3.77	3.71	3.97	4.59
33		8	90	N	5.84	8.0	6.33	6.36	3.89	6.38	5.53	6.39		5	5.88	5.8		5.34	5.77	5.83	6.4	6.06

Note: Missing values indicate no data collected due to low or no sample volume

STARS
PORE WATER CHEMISTRY - SC(micro mhos)
1990-1992

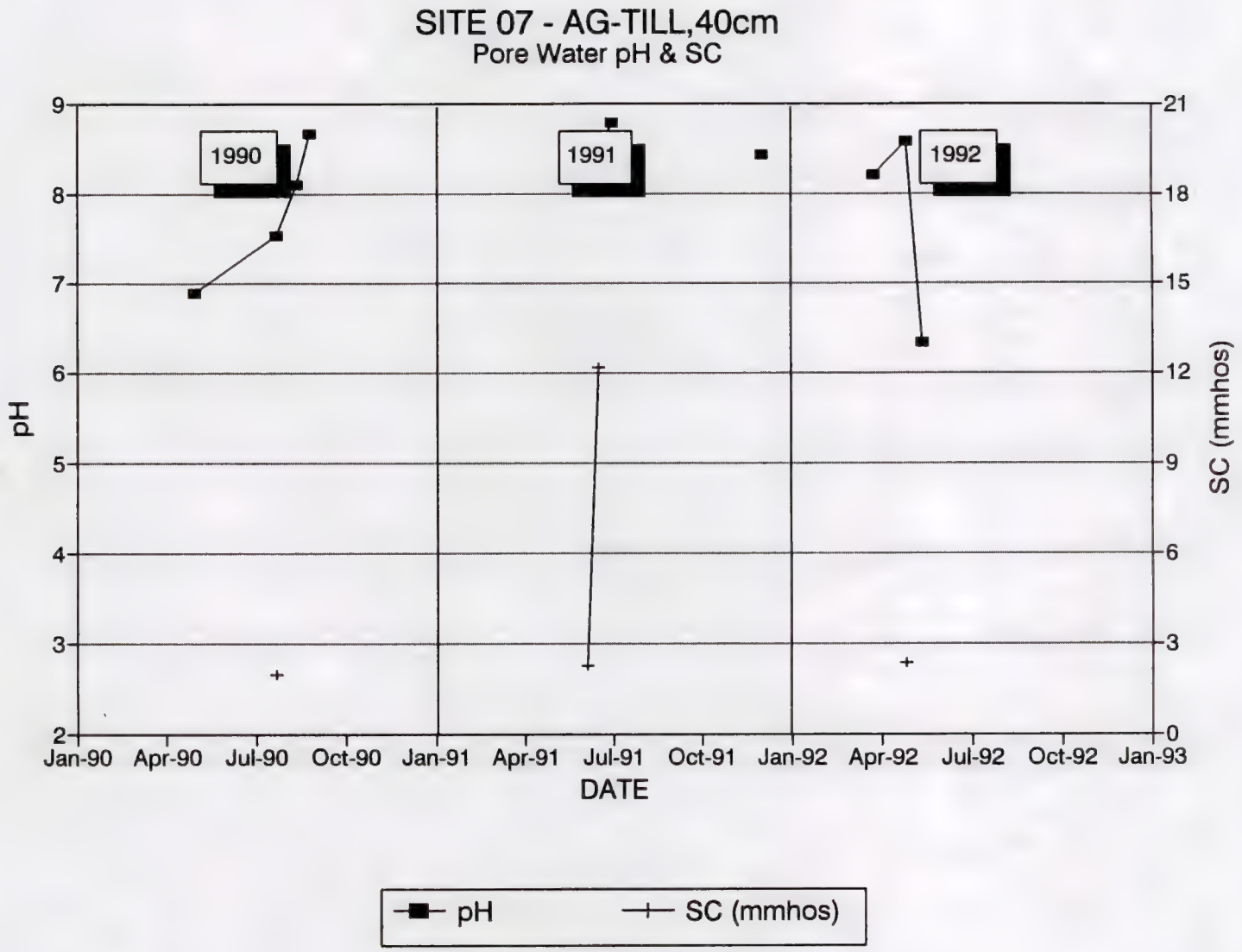
Site	Treatment	Plot	Depth (cm)	Sample Type	Sample date 5/2/90	7/24/90	8/1/90	8/27/90	9/25/90	6/7/91	6/18/91	7/2/91	8/20/91	10/4/91	2/3/92	2/27/92	3/27/92	4/28/92	5/14/92	5/27/92	6/3/92	6/17/92
2	A	22	40	N		0 25	3 87	3 19	2 55		* see											
2	A	22	90	N		2	1 25		0 86		note											
2	C	20	40	N		17 40	20 00	20 00	*3 31													
2	C	20	90	N		4 40	6 0*	6 07	< 79													
2	C	20	150	N		D	1 46	1 35	0 72													
2	D	24	40	N		12 60	2 83	3 15	*0 22													
2	D	24	90	N		9 75	9 41	9 26	5 71													
2	D	24	150	N		7 54	4 28	6 42	38													
2		23	40	N		8 50	20	6 7	7 8													
2		23	90	N		3 98	4 60	4 70	2 15													
2		23	50	N		0 89	1	06	6 75													
2	T	18	40	N		5 08	7 29	5 22	3 77													
2	T	18	90	N		2 62		2 52	2 02													
2	X	21	40	N			20 00	20 00	*7 71													
2	X	21	90	N		6 86	7 34	6 58	5 52													
7	A	16	40	N		96				2 28	12 20											
	A	6	90	N		18 86	3 10	6 49	0 75	12 55								2 36				
7	C	17	40	N		0 7	0 82	0 75	0 84	0 82	8 50	5 15	6 53	0	12 64	10 63	10 77	0 65	11 3	10 02	8 67	8 2
7	C	17	90	N		1 19	23	08		0 84	1 00	1 37	1 42				0 68	0 58	0 84		0 68	0 77
	C	17	150	N		90	1 68	1 54	92	84	6 10	5 93	5 82				0 99	0 87	0 84	0 8	0 83	0 8
7	D	4	40	N		74	1 65	75	88	3 60	60	2 15	2 4	1 4			53	63	1 68	1 52	1 54	1 5
7	D	14	90	N		1 99	84	1 78	2 18	1 55	0 70	1 16	1 3	3			55	1 47	1 64	1 4	1 4	5
7	D	14	150	N		1 33	30	43	57		3 10	7 43	0 82					2 85	2 9	2 82	2 68	2 72
7		18	40	N		0 92	0 76	0 77	0 75	1 7	50	2 60	1 99				26	1 29	1 42	32	34	1 32
7		8	90	N		1 58	1 47	1 38	2 19	0 52	2 60	2 80	2 68				0 66	0 78	0 78		0 75	
7		18	50	N		1 22	1 38	33	3 87	1 03	4 90	4 85	4 78				0 85	0 95	1 02	0 86	1 01	1 01
	T	2	40	N		5 8	1 83	93	2 19	14	5 70	< 02	2 03		26	2	05	1 17	1 2	1 14	1 14	15
7	T	12	90	N		31	1 56	1 45		2 37	0 70	7	0 09	8	1 98	2 05	2	2 05		1 88	< 3	99
4	A	15	40	N		4 8*	5 98	5 67		1 32	3 90	3 94	3 98	3	42	53	5*	1 42	54	36	4	44
7	A	5	90	N		2 92	3 08	1 45	2 83	5 30	5 00	5 38	5 5*	4 5			6 55	4 39	3 95	4 32	3 8	5 42
2	.	8	40	N		5 30	5 06	5 70	6 3	2 40		2 53		2 2	4	2 03	2 04	2 02	87	2	63	63
2	C	18	90	N		3 89	4 75	3 82	4 85	7 55	1 24	8 70	8 9*	5								5 94
2	C	18	50	N		2 50	2 97	2 03	2 39	1 60	0 82	0 55	0 58	2 2			3 82	3 0	3 28	3 7	3 34	3 7
	C	7	40	N		10 27		8 68		4 95	0 90	0 63	0 62									
2*	D	7	90	N		5 78	5 85	4 6	5 53	5 80	2 28	1 57	1 3*	3 8	2 56	3 19	3 93	4 02	4	3 77	3 27	3 55
2	D	7	50	N		42	67	22	5*	0 80	84	38	37	1	0 8	1 2*	1 07	08	1 15	1 2	0 38	1 06
2		14	40	N		0 27	34	8 64		10 00			18	8 8			10 08	8 97				6 58
2		4	90	N		5 82		5 2	6 4	4 80	1 42	01	0 58	4 1	2 87	3 89	3 82	4 68	4 6*	5 2*	4 45	4 86
2		4	50	N		3 65	3 48		2 94	70	1 33	0 47	0 8*	1 80	44	64	88	1 96	95	2 9	96	2 1
4		13	40	N						3 40	0 12	0 84	1 02				2 5	2 84	2 74			
4*	T	3	90	N		2 00	2 25	2 33		1 50	55	09	2 00	2 00			1 95	2	2 02	2 22	93	2 1
4*	A	2	40	N		4 98	2 48	3 04	3 66	4 20	8	2 52	40	3 2	3	2 32	2 68	3 54	3 42			
4*	A	2	90	N		2 42	2 15	4 4	2 50	1 0	4 80	43	2 32	1 4	1 54	3*	2 7	1 47	1 49			
4*	C	4	40	N			94	0 60		8 00	3 23	5 15	5 50				9 38	8 48				
27	C	14	90	N		8 5	4 00	6 4		6 10	7 82	3 75	3 46					8 04	5 66	5 75		5 28
27	C	14	150	N		5 38				4 70	4 18	8 90		8 8	7 36	7 29	6 69	7 54	7 21	7 49	7 27	7 8
27	D	8	40	N								3 90										
2*	D	16	90	N							4 50		3 43									
27	D	8	50	N							5 35	3 58	55									
27	X	13	40	N						13 20	20	5 68	09									
27	X	3	90	N							10 16	2										
33	A		40	N		7 18	6 35	6 9*		6 50	5 39	1 50	4 78									
10	A		90	N		1 8*	1 6*	1 8*	89	1 00	2 8	5 55	2 15					4 37	5 17	6 45	5 72	
33	F	2	40	N		7 2	3 34	5 8	7 78	5 10	4 07	2 24		0 98	0 96			1 26	1 04	25	4	1 22
33	C	12	90	N		< 36	1 8	69	3 1	8	2 14	4 02	2 08	3 83				5 8	4 46	5 33	4 5*	4 5*
33	C	2	150	N		77	26	34	33	0 70		2 67		83	7 68			2 2	1 9	2 8	1 8*	1 65
33	D	8	40	N						7 0	5 00	4 40	1 81	2	8 02			1 52	1	2	3	4
33	D	8	90	N						1 50	2 30	2 08	1 60	2 96				8 3				
33	D	8	50	N		1 16				2 80	8 47	8 07	8 14	1 13	2*			1 8	1 56	8*	55	1 5
33		0	40	N		1 63	48	52	1 53	4 93	7 58	5 74		35				2 76	< 15	2 47	2 2	1 96
33		10	90	N		4 40	3 42	3 89	2 39	1 70				3 83					4 88	5 22	3 8*	3 54
33		10	50	N		< 46	75	3 94	82	0 70				74					64	2 05	1 82	1 94
33	T	8	40	N		5*	1 1<	1 8*	4	3 90				1 05					0 89	1 19	0 84	02
33	T	8	90	N		4 39	3 30	3	1 25	5 00				2 07	2 8*	4 29	4 09	4 56	3 75	3 8	3 72	4 02
						5 82	4 4	4 82						3 02	3 25	4 8	4 3	4 70	4 2*	4 36	4 35	4 69

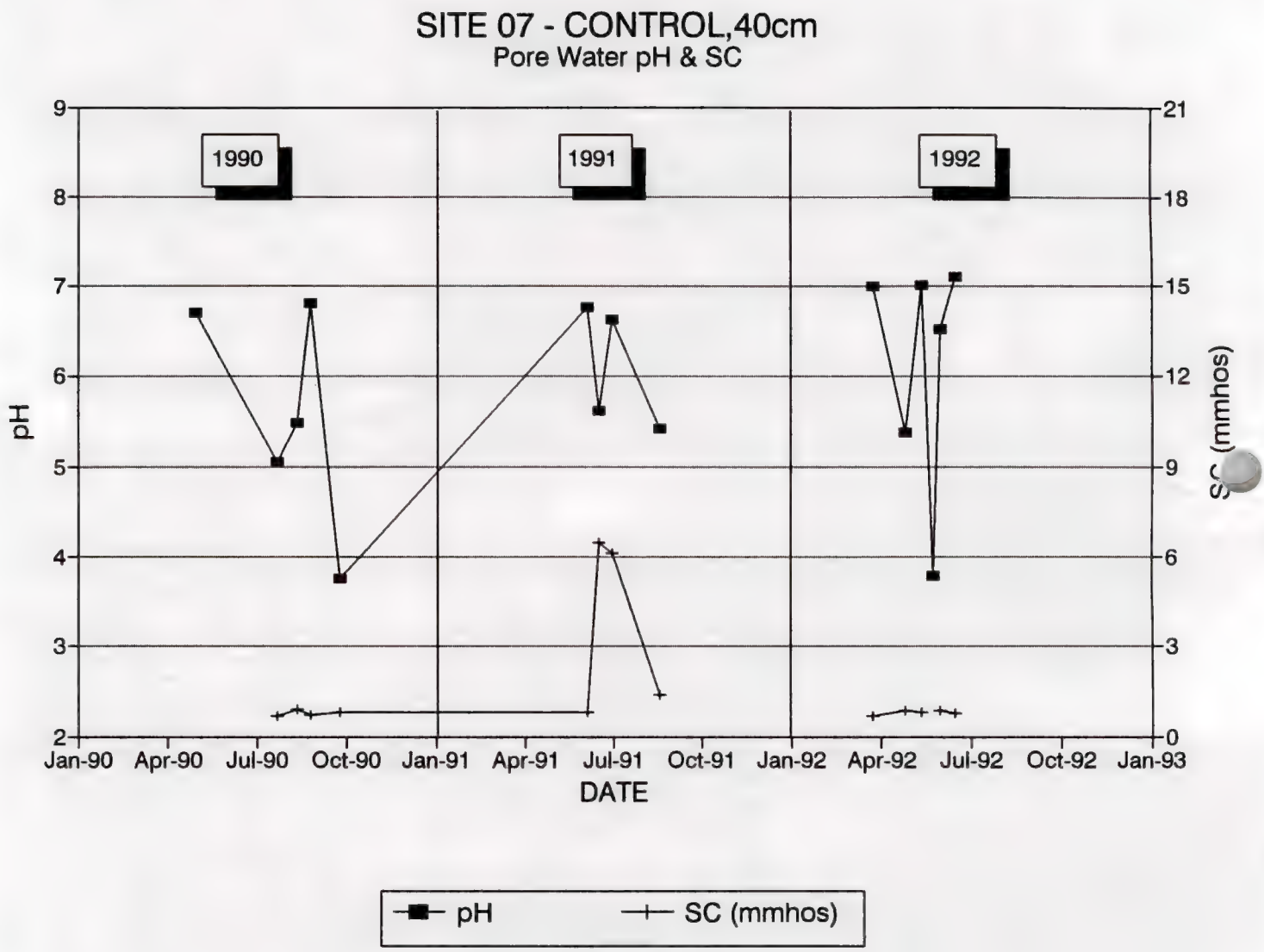
Note: Missing values indicate no data collected due to low or no sample volume
Lack of SC data on 5/2/90 due to instrument failure

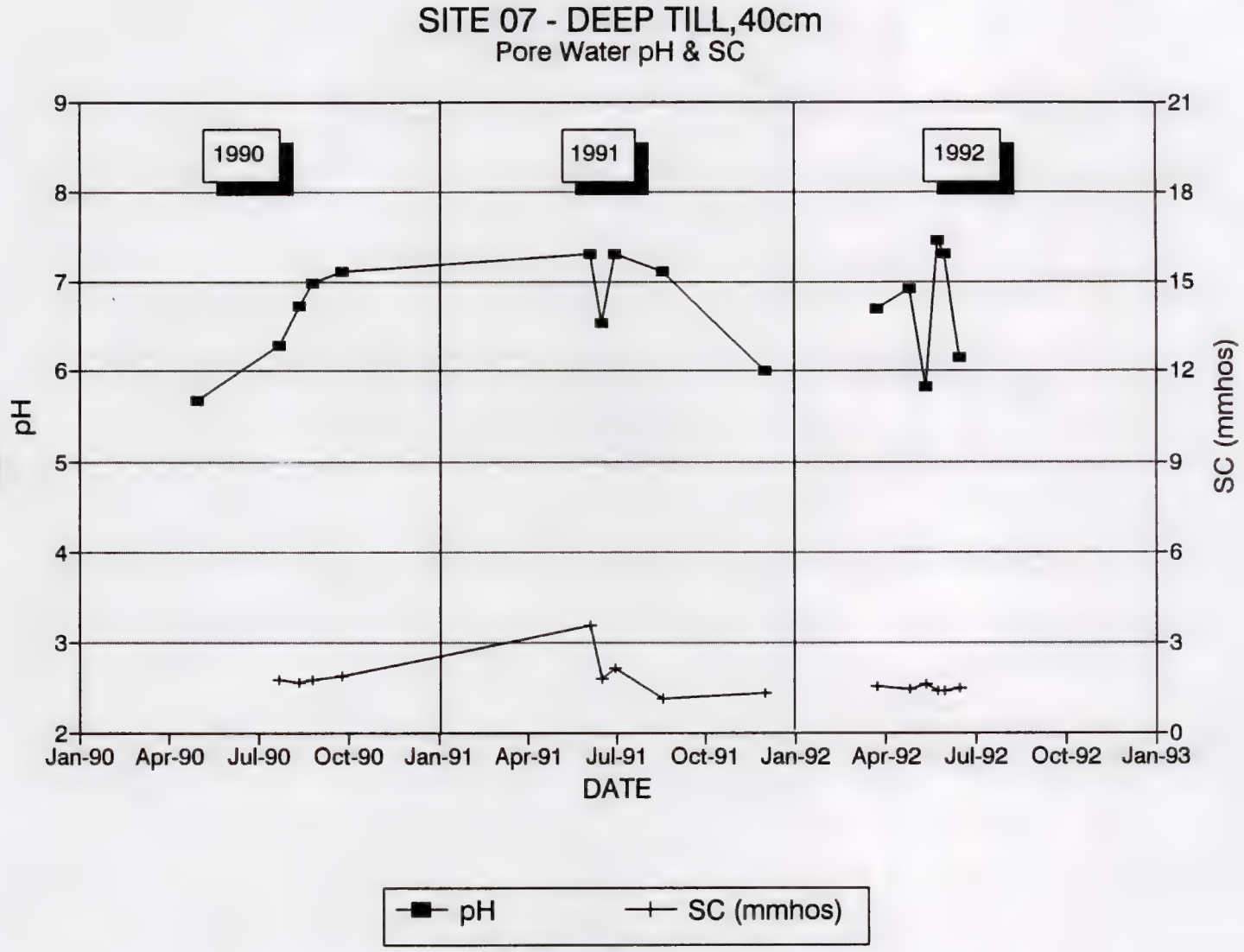
STARS
PORE WATER CHEMISTRY - Eh(mV)
1990-1992

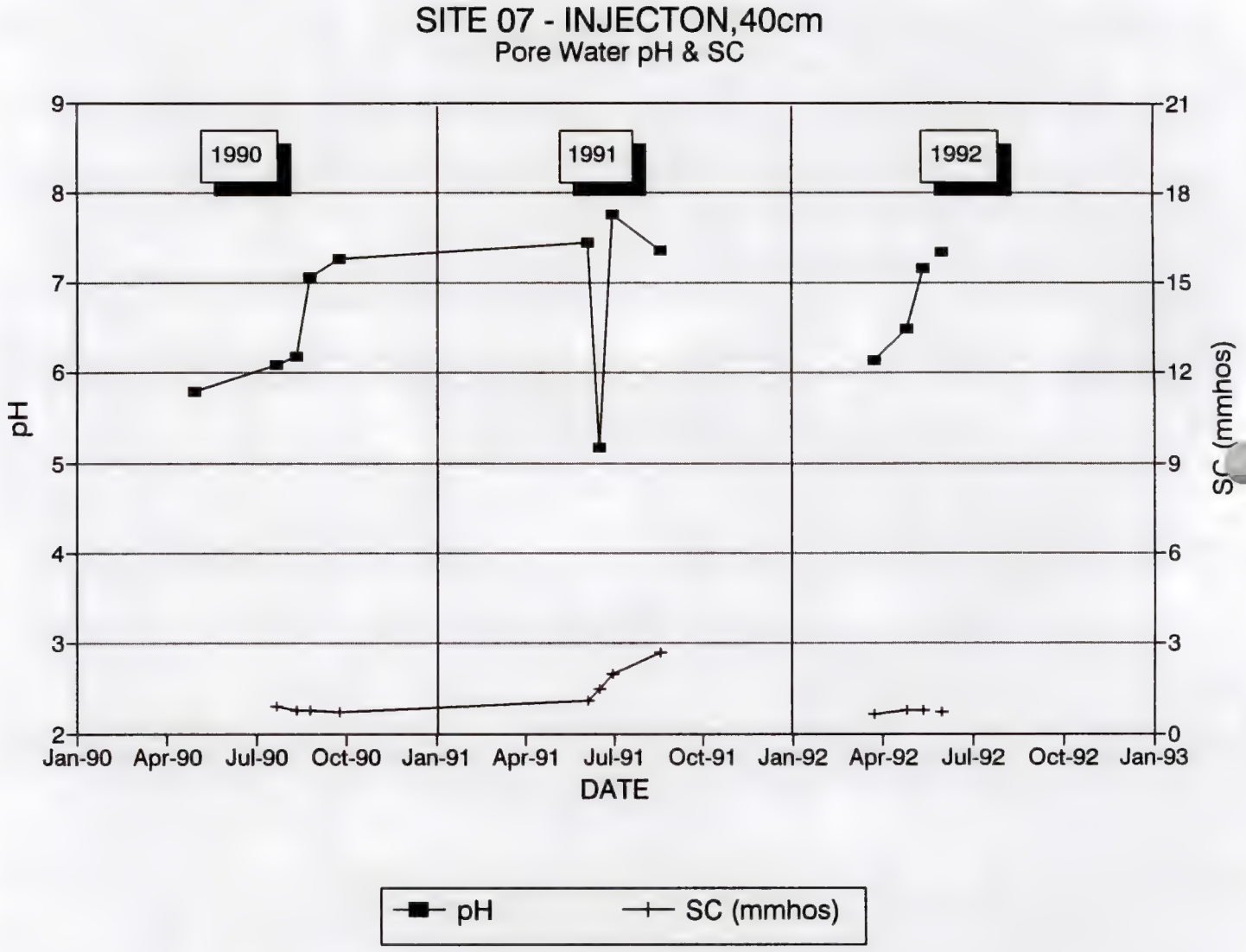
Site	Treatment	Plot	Depth (cm)	Sample Type	Sample date 4/24/90	7/24/90	8/13/90	8/27/90	9/25/90	6/7/91	6/18/91	7/2/91	8/20/91	2/4/9	1/23/92	2/27/92	3/27/92	4/20/92	5/14/92	5/27/92	6/3/92	6/17/92
2	A	22	40	N	4.86	218.00	241.00	84.00	225.30		* see note											
4	A	22	90	N	2.54	82.00	57.00		75.00													
2	C	20	40	N	5.96	127.00	123.00	139.00	55.40													
2	C	20	90	N	6.62	60.00	60.00	41.00	86.20													
2	C	20	150	N	.68	80.00	48.00	48.00	78.20													
2	D	24	40	N	0.5	252.00	225.00	208.00	244.10													
2	D	24	90	N	1.7	170.00	89.00	164.00	204.00													
2	D	24	50	N	4.00	160.00	170.00	106.00	187.50													
2		23	40	N	10.5	337.00	350.00	34.00	344.50													
2		23	90	N	3.74	30.00	29.00	24.00	7.20													
2		23	150	N	.05	183.00	147.00	149.00	7.50													
2	T	9	40	N	5.05	428.00	454.00	376.00	295.80													
4	T	10	90	N	2.78	90.00	230.00	82.00	94.80													
2	X	2	40	N		130.00	87.30	18.00	86.20													
4	X	21	90	N	8.3	84.00	78.00	7.00	15.20													
	A	5	40	N	0.82	58.00		58.00		128.00	197.00			484.9			84	1.3	75			
7	A	5	90	N		595.00	570.00	435.00	85.80	573.00		238.00	25.30	914	1036	978	1040	1027	984	998	998	988
7	C	7	40	N	0.45	314.00	317.00	152.00	347.70	256.00	324.00	62.00	1.70				526	783.3	520	858	853	5.6
7	C	7	90	N	0.80	347.00	280.00	292.00		33.00	288.00	299.00	32.20				908	836	834	984	743	857
7	C		50	N	2.3	241.00	246.00	274.00	296.60	283.00	331.00	194.00	102.60	534.5			739	734	804	777	681	866
7	D	14	40	N	16	148.00	106.00	87.00	32.10	204.00	280.00	189.00	88.27	723			554	629.8	781	810	804	784
7	D	14	90	N	0.89	98.00	149.00	35.00	35.00	176.00	275.00	43.00	19.5					5.8	718	597	593	738
7	D	14	50	N	1.40	1.90	44.00	29.00	32.80		258.00	47.00	4.60	648			586	614.4	584	804	587	678
7		8	40	N	0.80	242.00	220.00	2.70	238.40	175.00	296.00	194.00	19.40				656	686.4	575		608	
		8	90	N	.8	2.15.00	256.00	257.00	280.00	235.00	28.00	283.00	24.82				735	74.2	685	78	708	536
7	T	18	150	N	1.29	30.00	78.00	102.00	49.30	281.00	344.00	182.00	-80.1	500	4.75	522.5	564	532.8	516	510	488	508
	T	2	40	N	1.85	220.00	257.00	205.00	8.40	22.00	290.00	60.00	40.60	70	885	818.4	691	704.8	435	820	701	76
2	A	5	90	N	1.03	21.00	48.00	32.00	37.20	253.00	278.00	210.60	10.80	645.8	755	742.5	545	658	894	858	65	7.4
21	A	5	40	N	4.16	167.00	227.00	86.00		185.00	150.00	212.00		806.8			621	608.3	564	582	557	631
2	C	8	90	N	6.20	20.00	37.00	7.00	59.10	22.00	308.00	84.40	592.00	61.4	562.8	576.6	564	598	556	574	480	596
2		8	40	N	6.20	20.00	238.00	203.00	88.50	76.00	65.00	83.00	612.00	639.5								573
4		8	90	N	4.77	42.00	200.00	158.00	43.20	263.00	560.00	204.80	378.00	588.5			598	595.4	567	590	581	629
4		18	150	N	3.83	160.00	2.00	68.00	50.10	180.00	282.00	372.20	400.00	620.3								
2	T	7	40	N	3.40	100.00		00		54.00	335.00	77.60	389.00					560.5				
21	D	7	90	N	7.33	42.00	9.00	36.00	59.10	96.00	2.20.00	97.20	364.00	580.7	548.8	588.6	584	595.4	574	606	6.4	626
2	D	7	50	N	4.5	8.00	8.00	108.00	36.90	75.00	33.00		374.00	5.3	557.6	553.5	587	586.1	562	588	587	603
4		14	40	N	3.05	187.00	50.00	56.00		24.00		208.40	335.00	595.1			507	606	563.3			635
2		4	90	N	7.32	66.00		86.00	42.80	48.00		257.00	392.00	54.2	547.6	553	535	554.7	521	559	509	542
2	T	3	40	N	3.36		46.00	58.30	99.00	63.00	250.00	213.50	79.00	533.8	530	543.8	522	542.4	514	550	499	565
21	T	3	90	N	2.48	106.00	80.00	84.00		90.00	226.00	30.60	388.00				554	578	467.2	605		
27	A	7	40	N	1.5	1.1.00	178.00	2.00	148.30	178.00	1.2.00	176.50	375.00	526			529	556.5	533.3	588	512	620
21	A	7	90	N	35	8.00	48.00	82.00	222.70	76.00	177.00	25.60	320.00	505.8	601.2	601.7	598	564	595	6.0		
27	A	4	40	N	20		54.30	50.00		97.00	137.00	33.70	383.00	525.9	552.8	589.3	591	578.8	577			
27	C	4	90	N		80.00	7.30	14.00	15.60	205.00	239.00	26.60	348.00	560.4	542.7	545.8	553	606.6	616	575	615	582
27	D	4	40	N		8.00				575.00	172.00	84.80						573.4	576	535	551	569
4	D	8	90	N							126.00	2.50	380.00									
21	D	5	150	N	10						31.00	18.40	370.00									
2	X	3	40	N							58.00	54.40	375.00									
27	X	3	90	N						197.00	133.00	52.70										
33	A		40	N	11.29	87.00	259.00	21.00		324.00	200.00	22.20	15.10									
33	A	7	90	N	68	60.00	85.00	122.00	55.60	288.00	133.00	0.85	320.00									
33	D		40	N	6.18	25.00	209.00	273.00	256.70	33.00	08.00	39.60		563	54	548.3	885	703.8	577		586	591
33	C	17	90	N	2.06	18.00	202.00	37.00	89.20	280.00	166.00	33.90	2.70	858		705.8	682	734.8	534	588	501	606
33	C	2	50	N	1.62	5.00	189.00	27.00	56.50	275.00	138.00	65.0	298.00	591	548.9	621	584	609.6	674	707	625	726
33	D	8	40	N	.43					288.00		25.80	293.00	568	537.6	580.2	578	595	595	8.3	591	826
33	D	8	90	N	2.31	85.00				295.00	160.00	150.40	284.00	6		576.7			606	548	582	604
33	D	8	50	N	50	84.00	182.00	1.00	3.80	287.00	13.00	29.80		58	592	598.2	82	6.4.3	588	582	590	582
33		10	40	N	4.03	23.00	289.00	250.00	248.0	340.00	23.00	72.40	280.00	562		548.1	576	574.4	560	556	571	573
33		10	90	N	2.02	103.00	182.00	257.00	150.60	290.00	146.00	33.70		682			718	726.2	716	711	670	729
33		0	50	N	67	103.00	160.00	11.00	14.70	278.00				593			606	598	586	597	626	624
33	T	9	40	N	4.3	220.00	298.00	10.00	24.70	350.00				583			585	593	587	578	593	591
33	T	9	90	N	4.29	47.00	22.00	168.00		308.00				7.4	638	598.8	743	758.6	720	720	709	744
														645	630.3	612	684	686.8	660	675	659	672

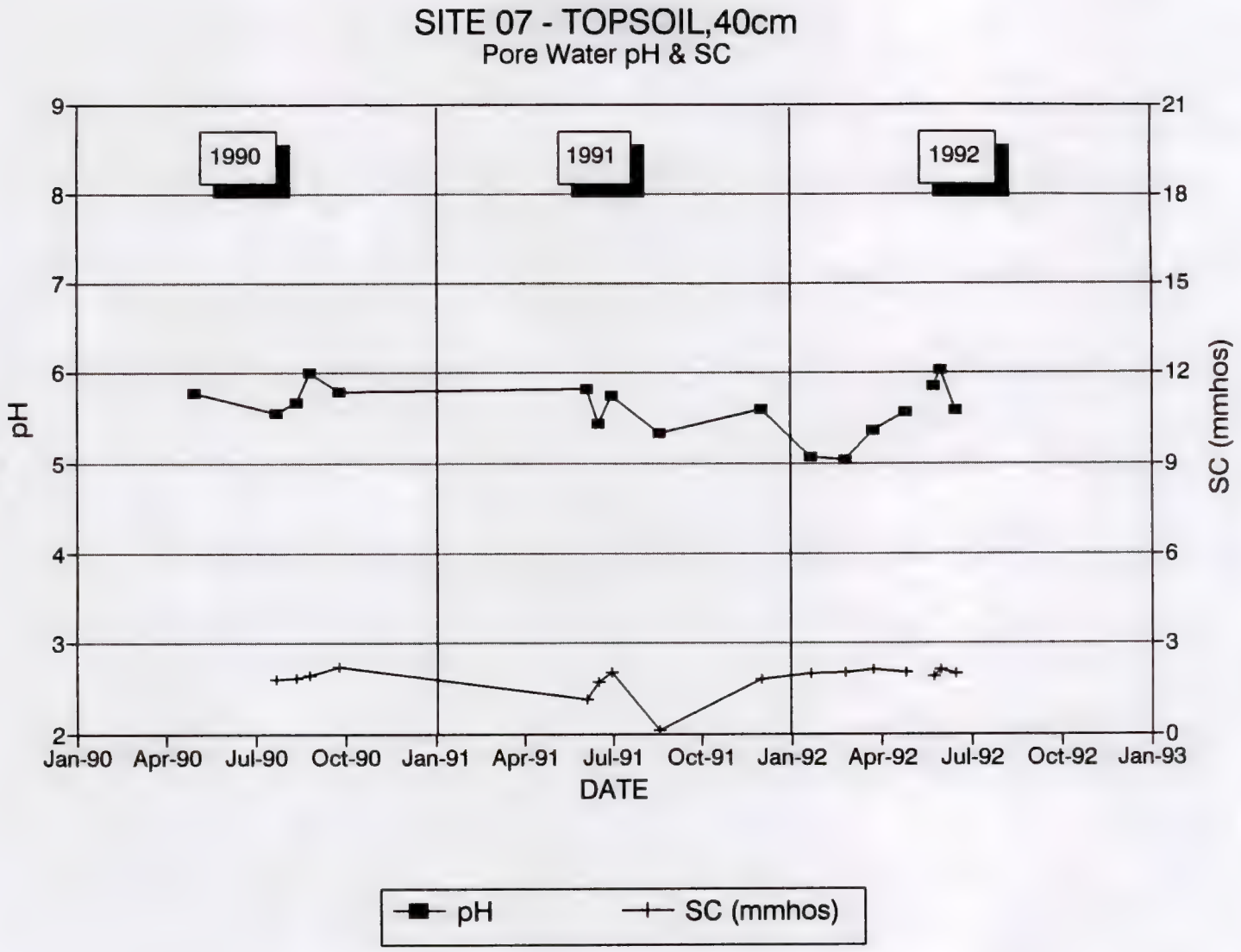
*Note: Missing values indicate no data collected due to low or no sample volume

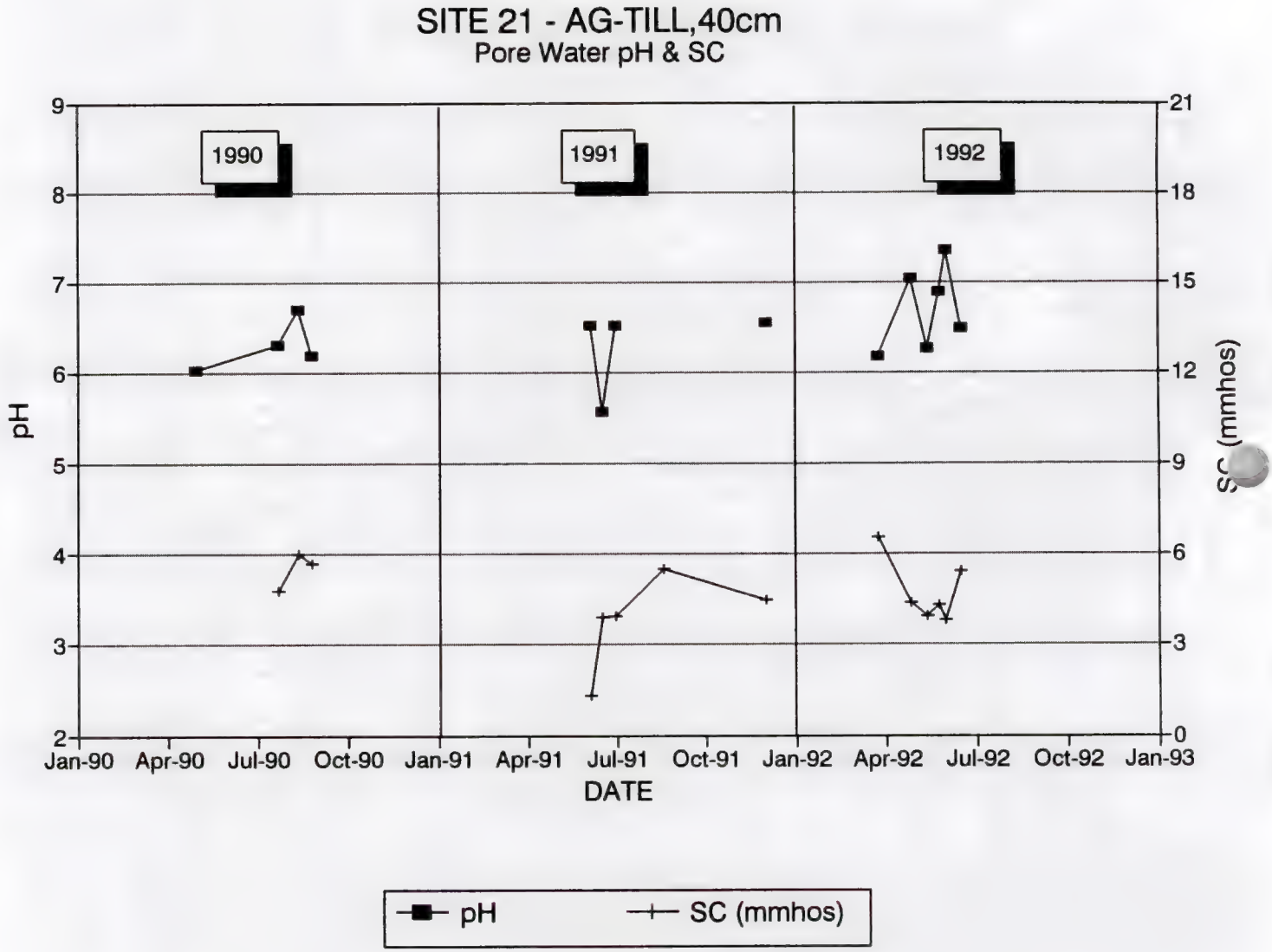

SITE 07 - AG-TILL,40cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
9
8
7
6
5
4
3
2
21
18
15
12
9
6
3
0
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

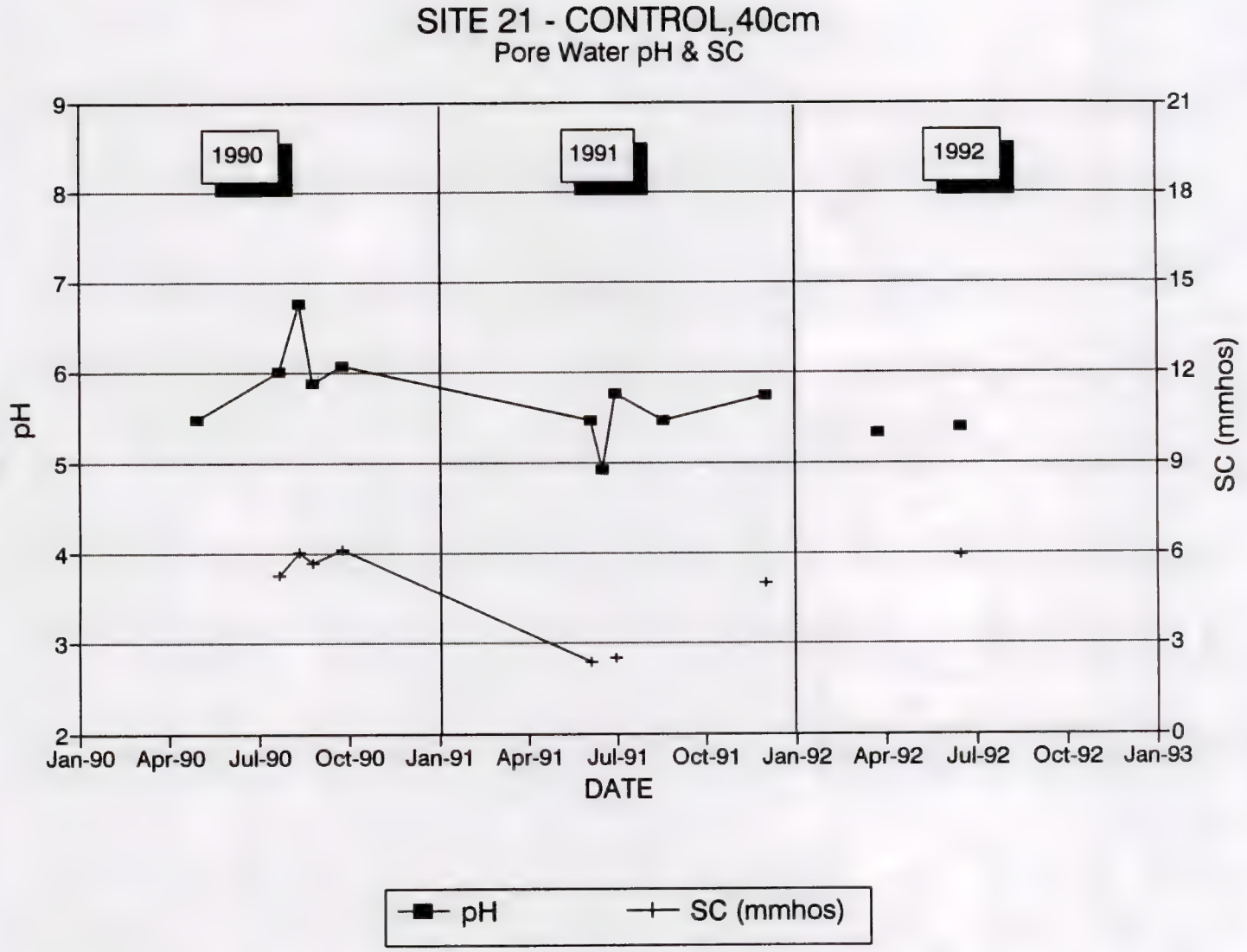

SITE 07 - CONTROL,40cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

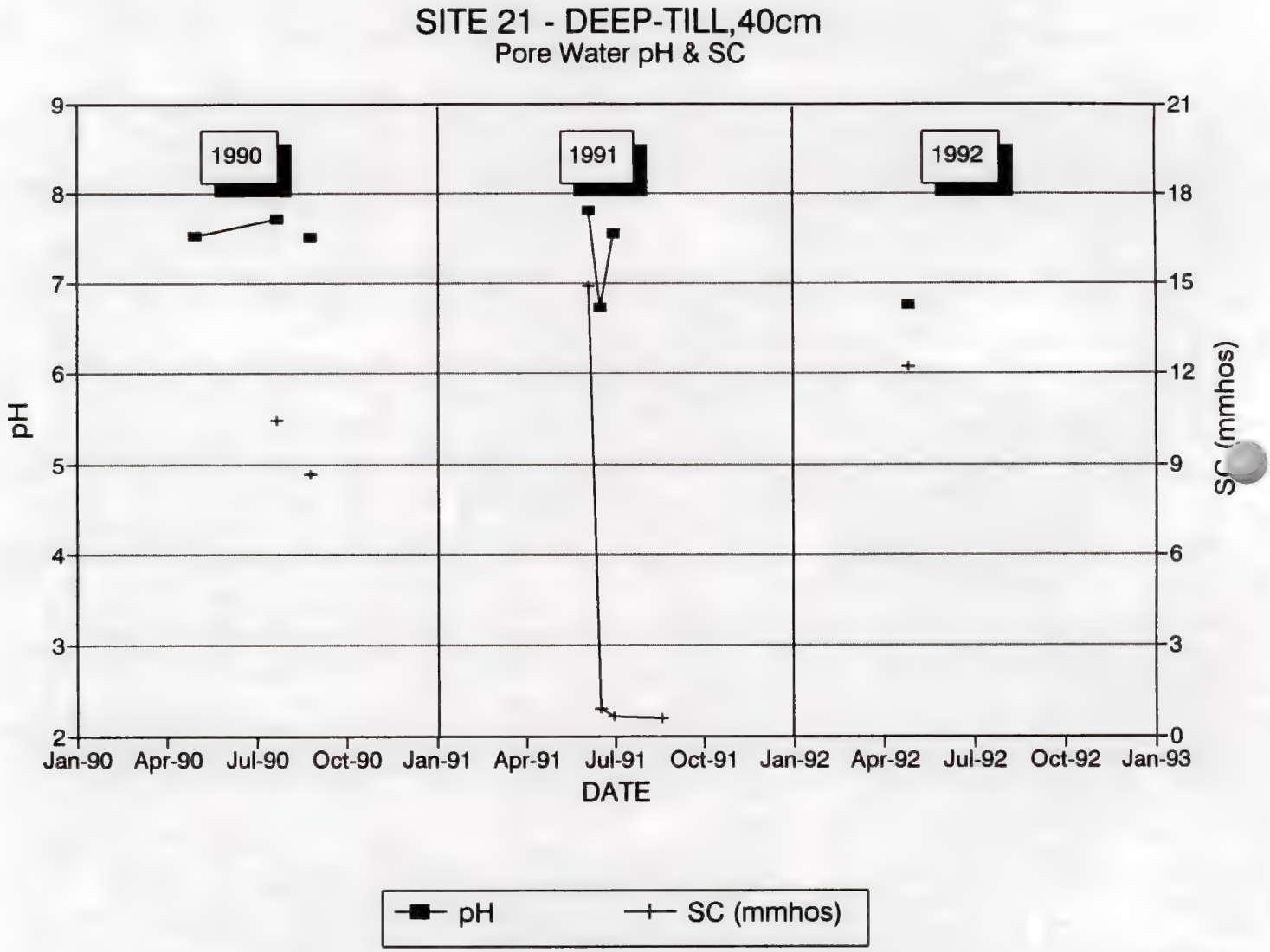

SITE 07 - DEEP TILL,40cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

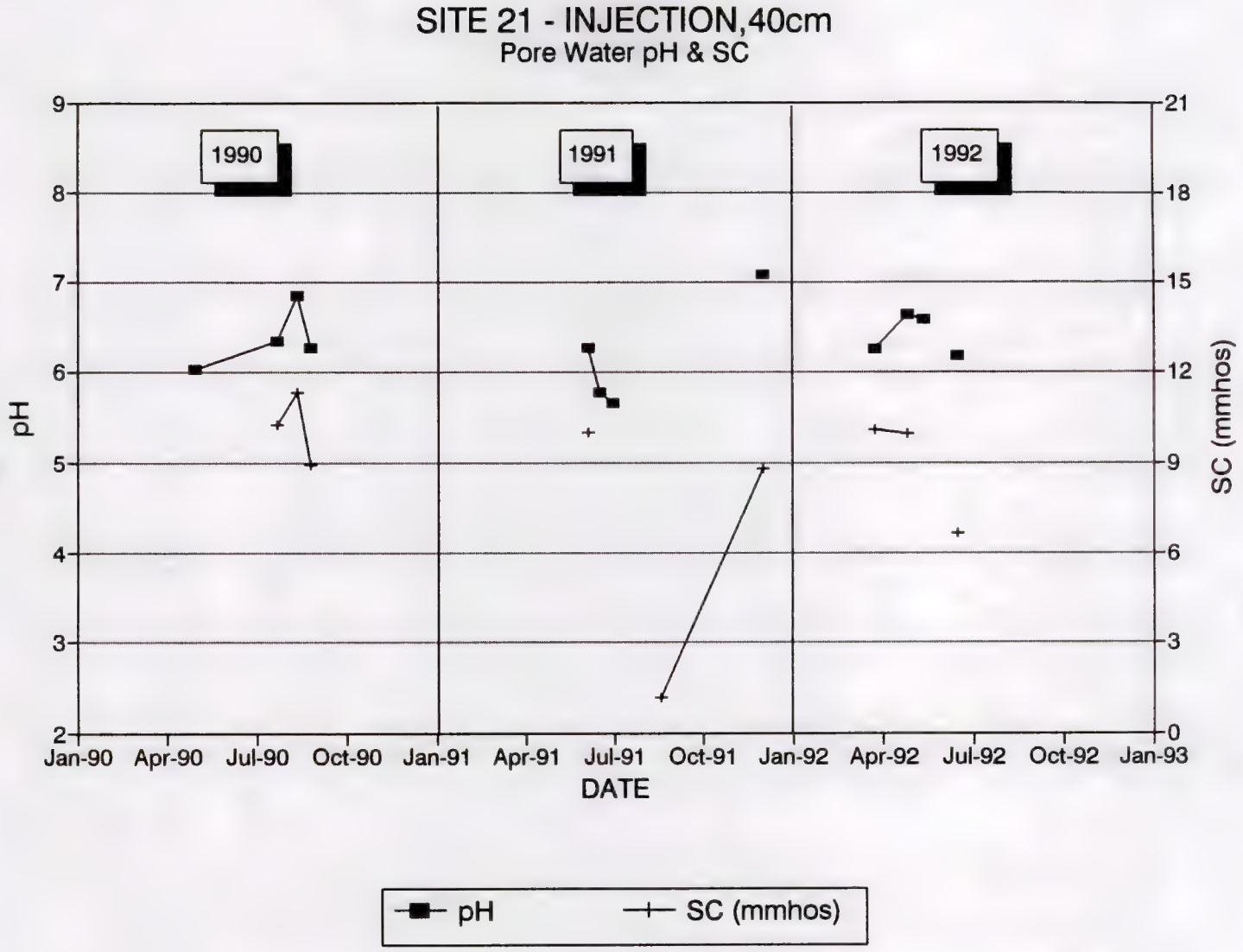

SITE 07 - INJECTON,40cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

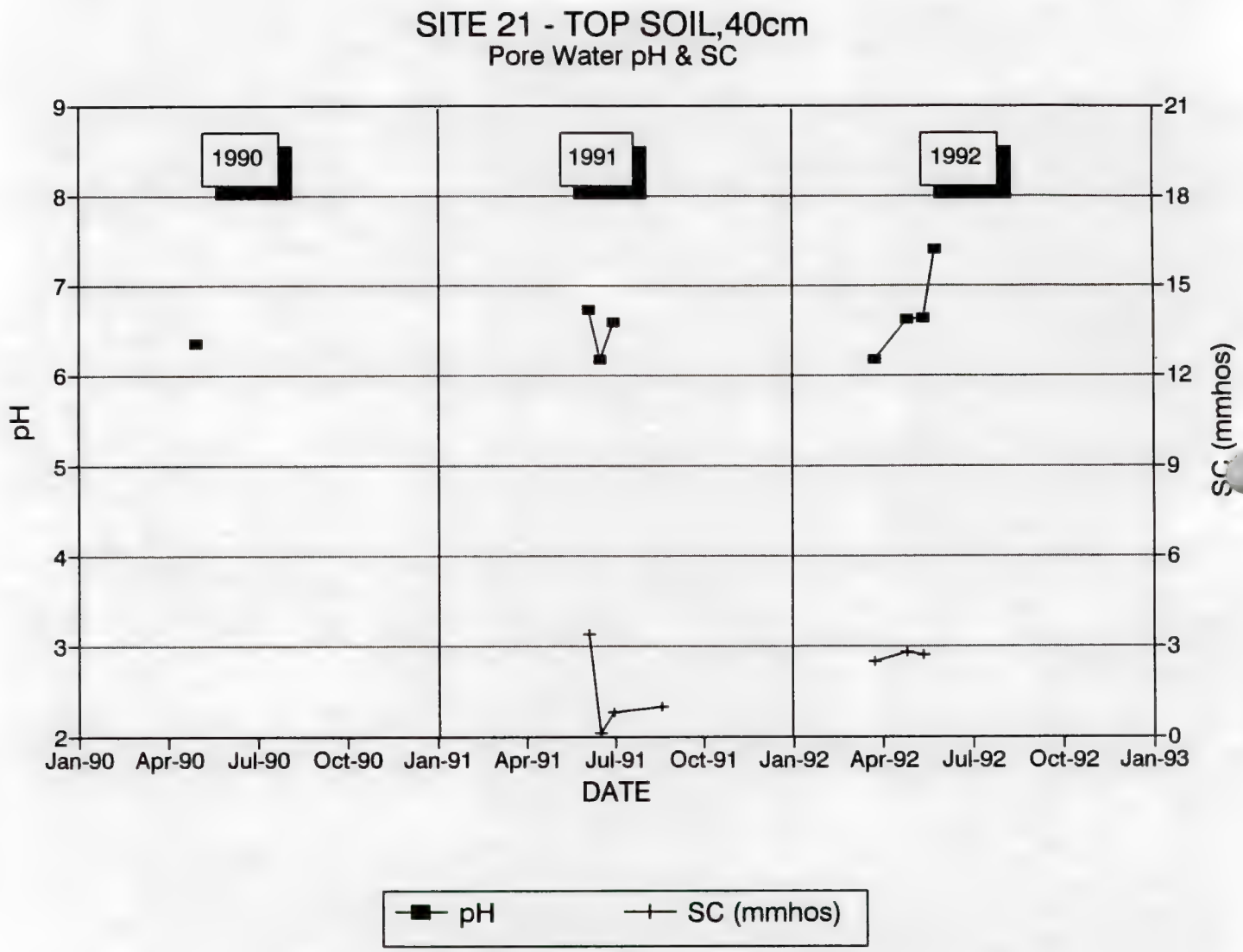

SITE 07 - TOPSOIL,40cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

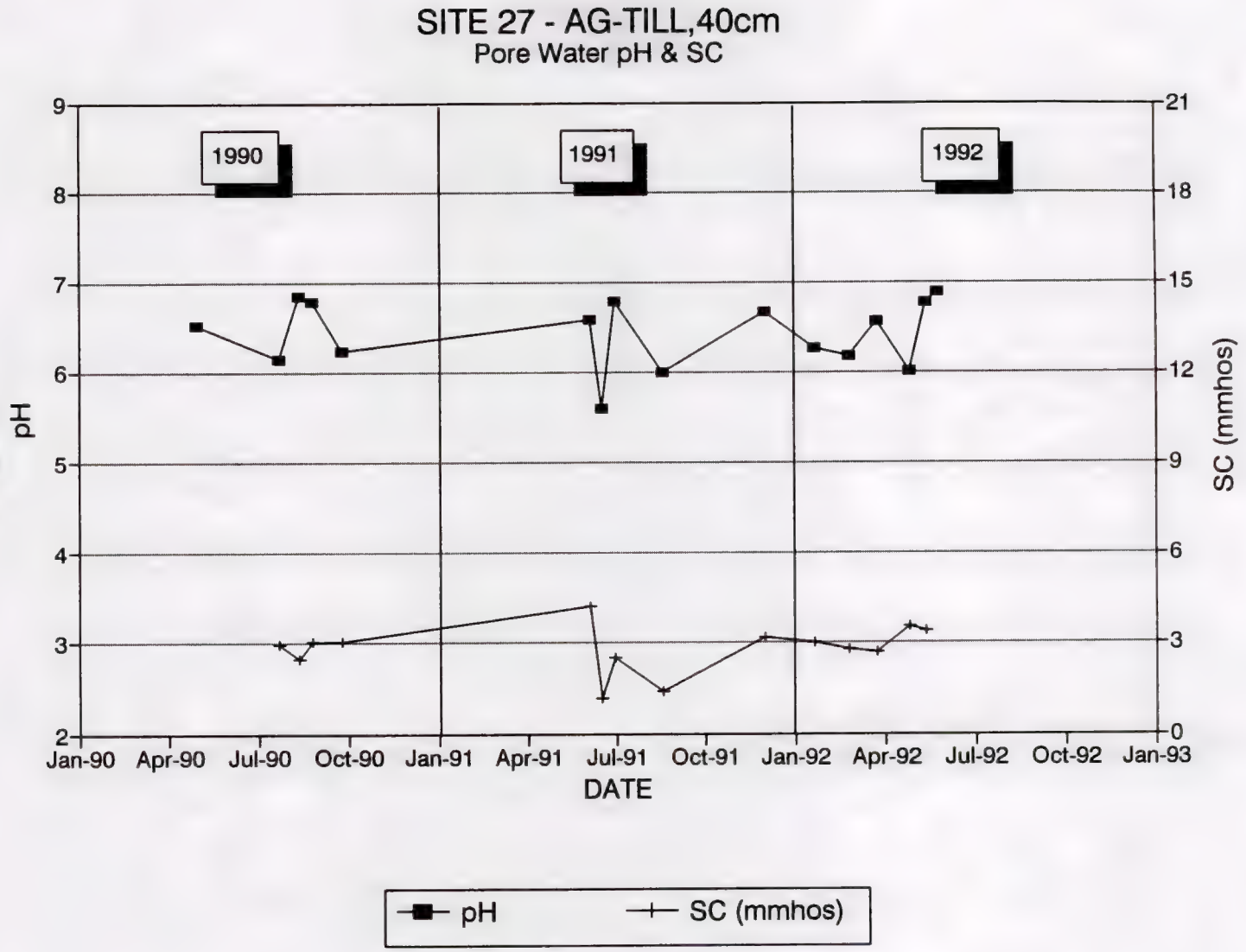

SITE 21 - AG-TILL,40cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
9
8
7
6
5
4
3
2
21
18
15
12
9
6
3
0
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
DATE
pH
SC (mmhos)

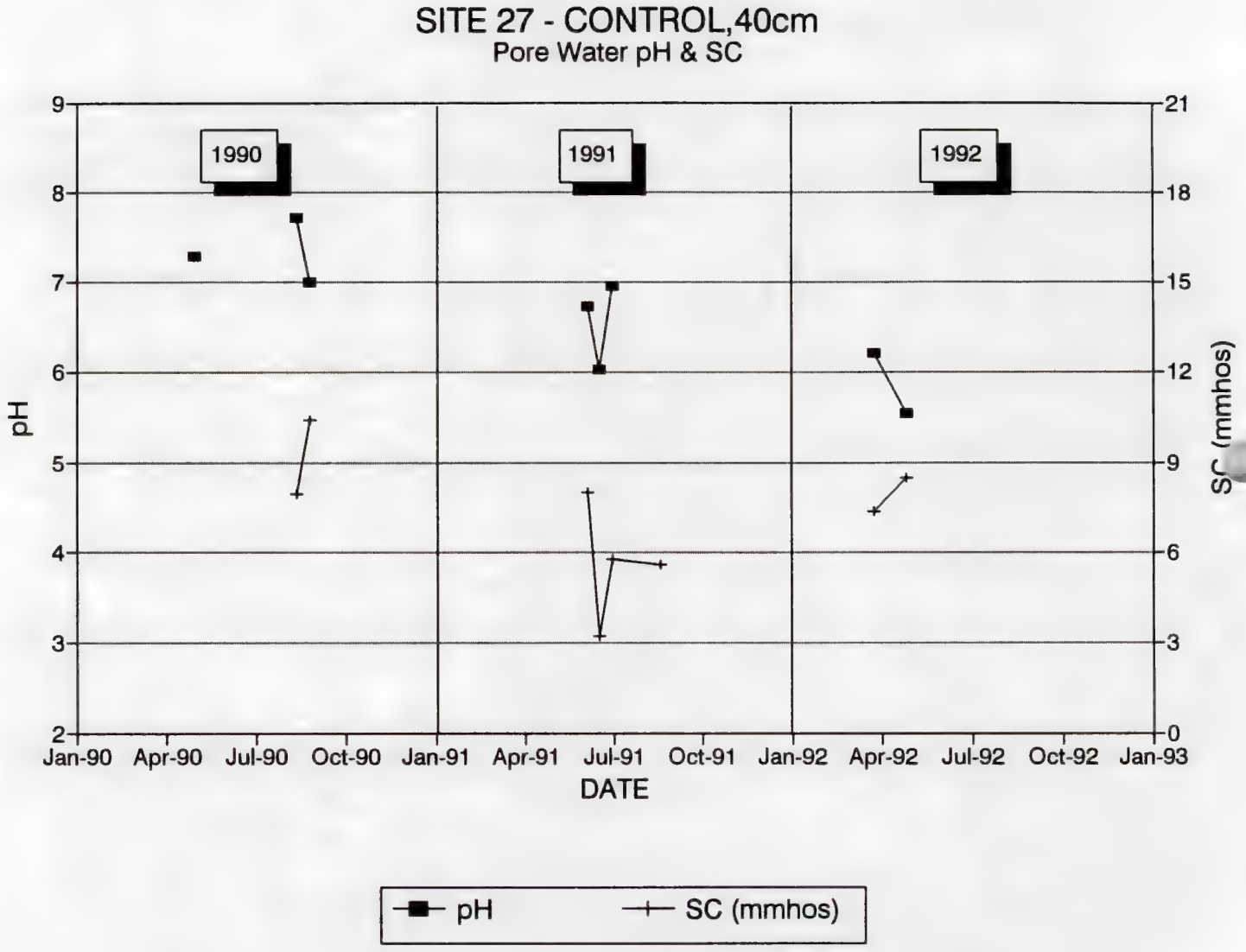

SITE 21 - CONTROL,40cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

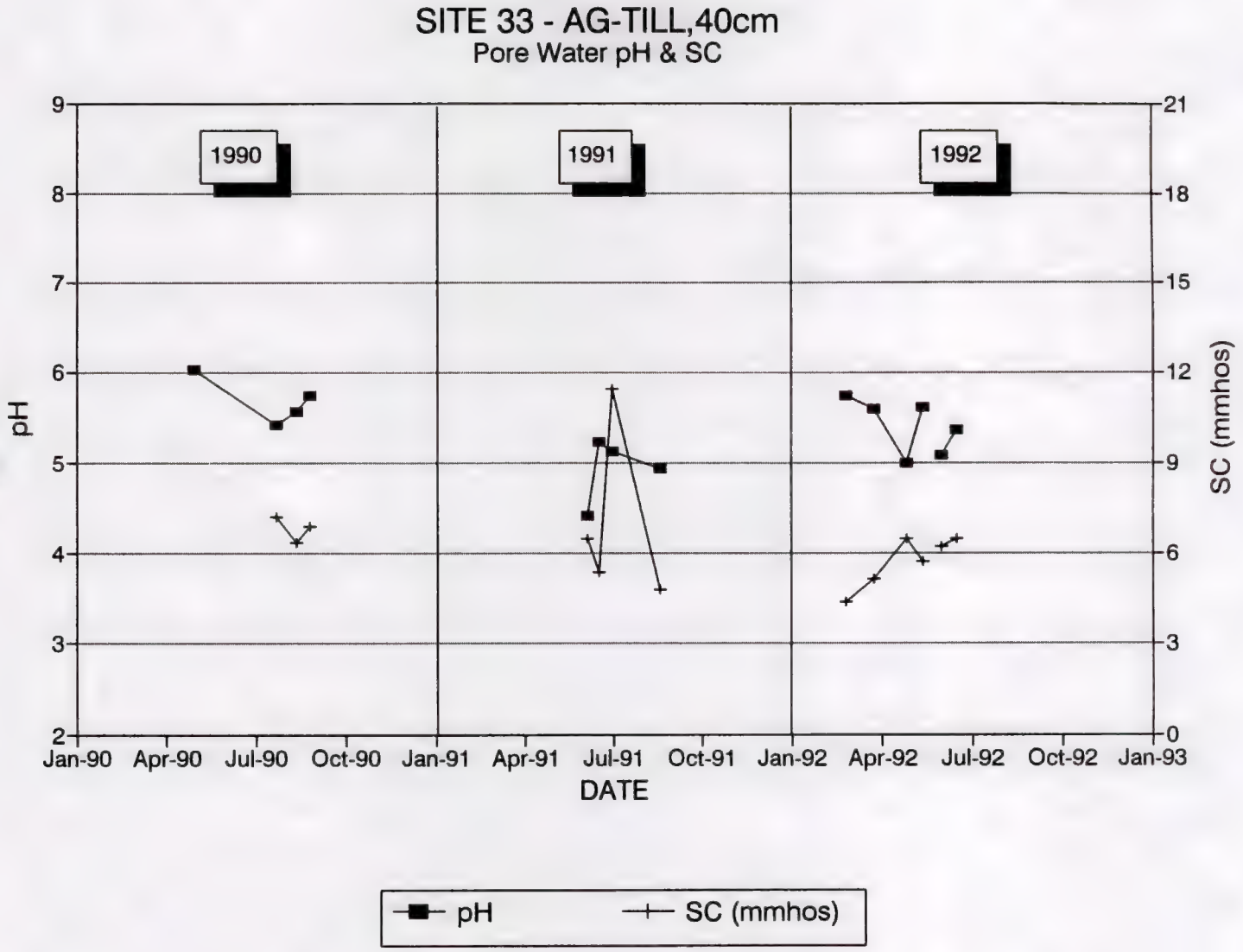

SITE 21 - DEEP-TILL,40cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

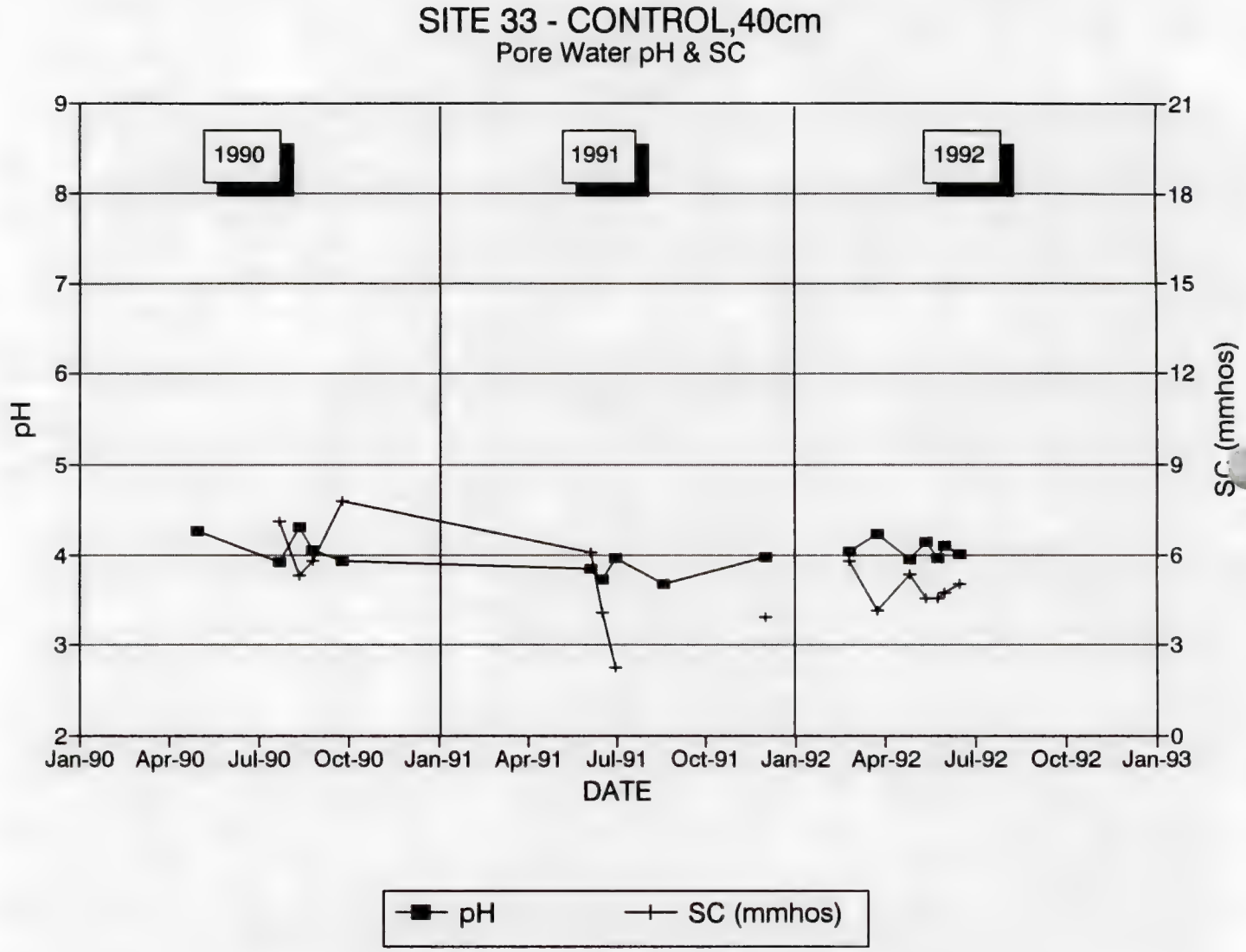

SITE 21 - INJECTION,40cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
9
8
7
6
5
4
3
2
21
18
15
12
9
6
3
0
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

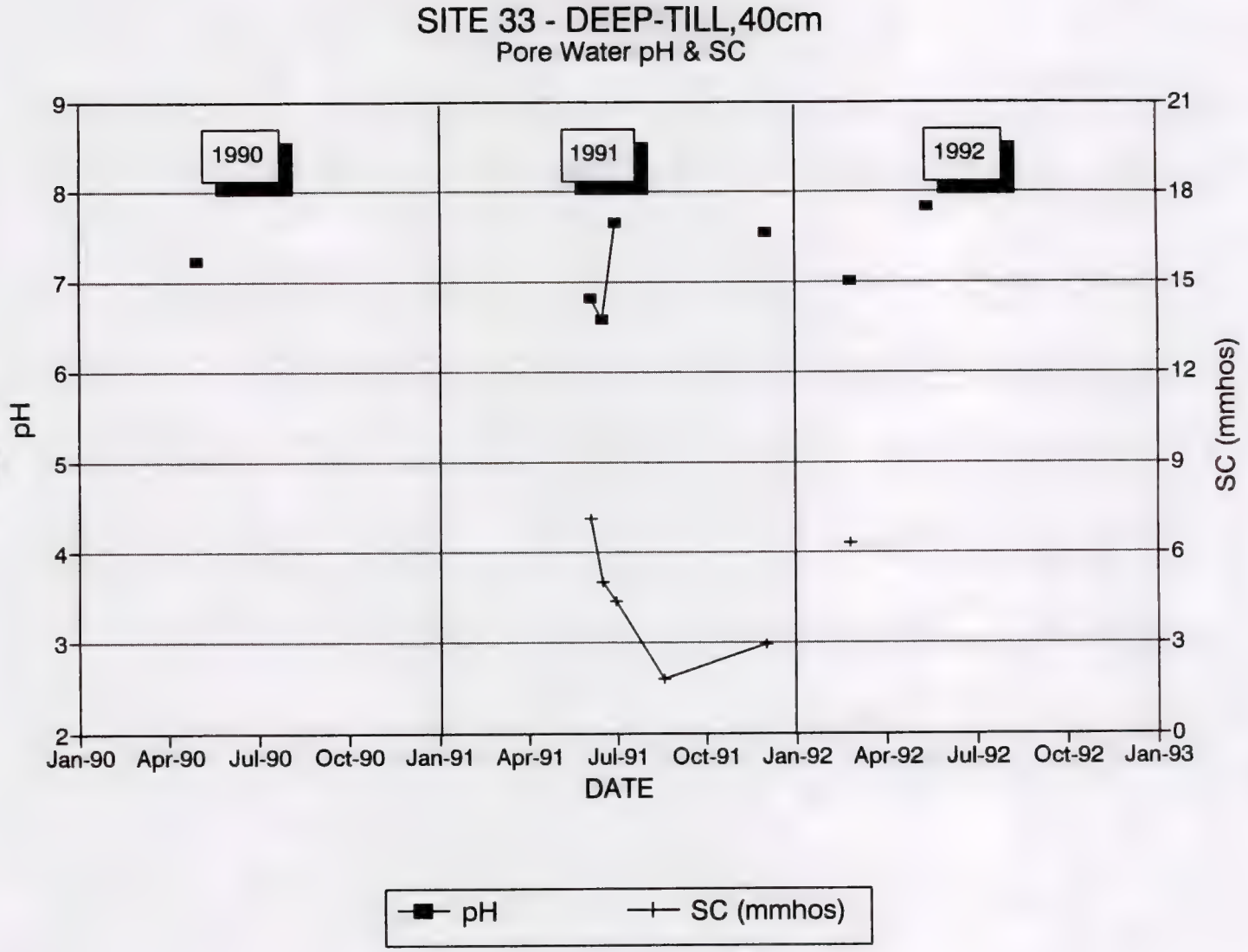

SITE 21 - TOP SOIL,40cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
9
8
7
6
5
4
3
2
21
18
15
12
9
6
3
0
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
DATE
pH
SC (mmhos)

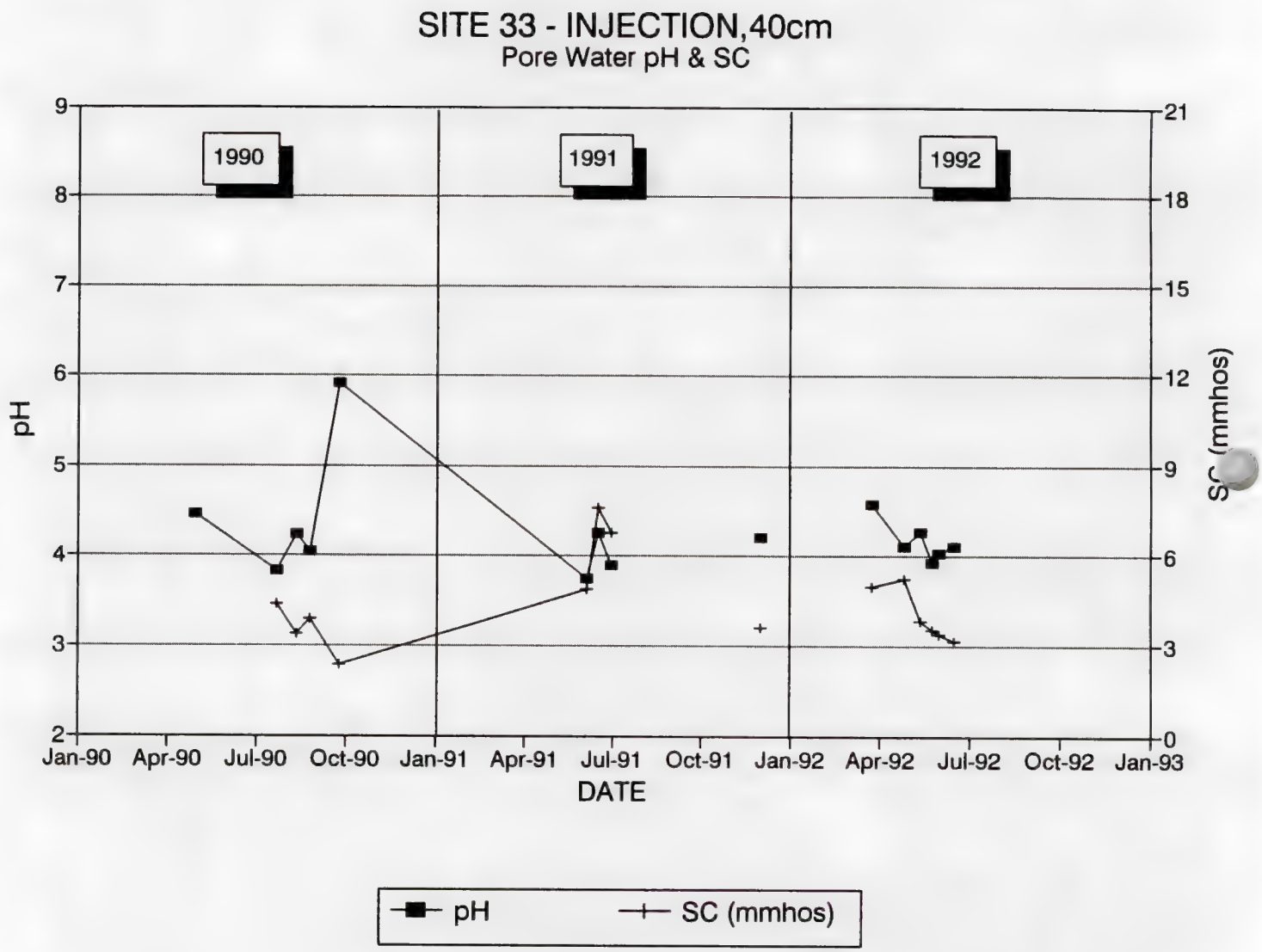

SITE 27 - AG-TILL,40cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
9
8
7
6
5
4
3
2
21
18
15
12
9
6
3
0
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

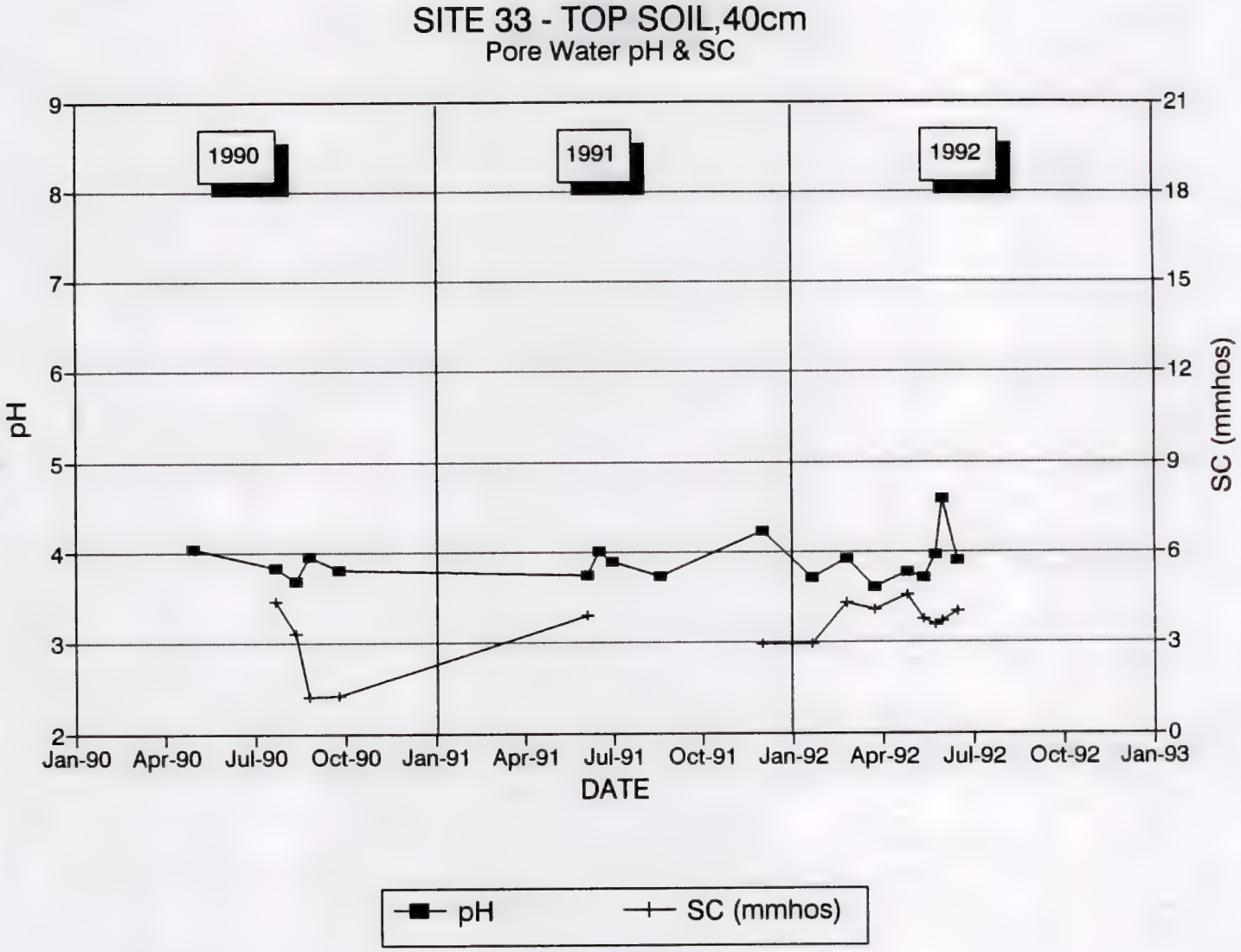

SITE 27 - CONTROL,40cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
9
8
7
6
5
4
3
2
21
18
15
12
9
6
3
0
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
DATE
pH
SC (mmhos)

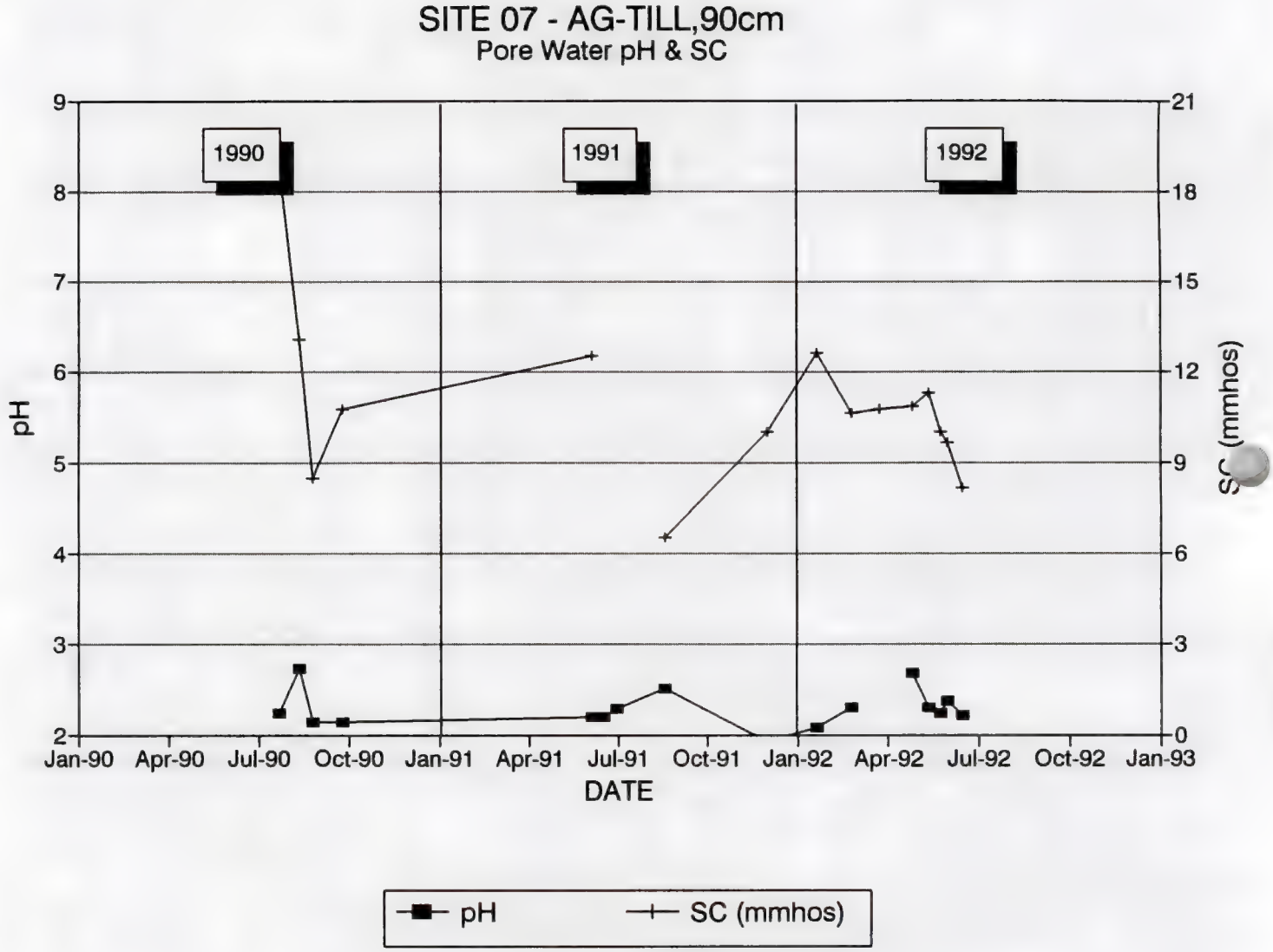

SITE 33 - AG-TILL,40cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

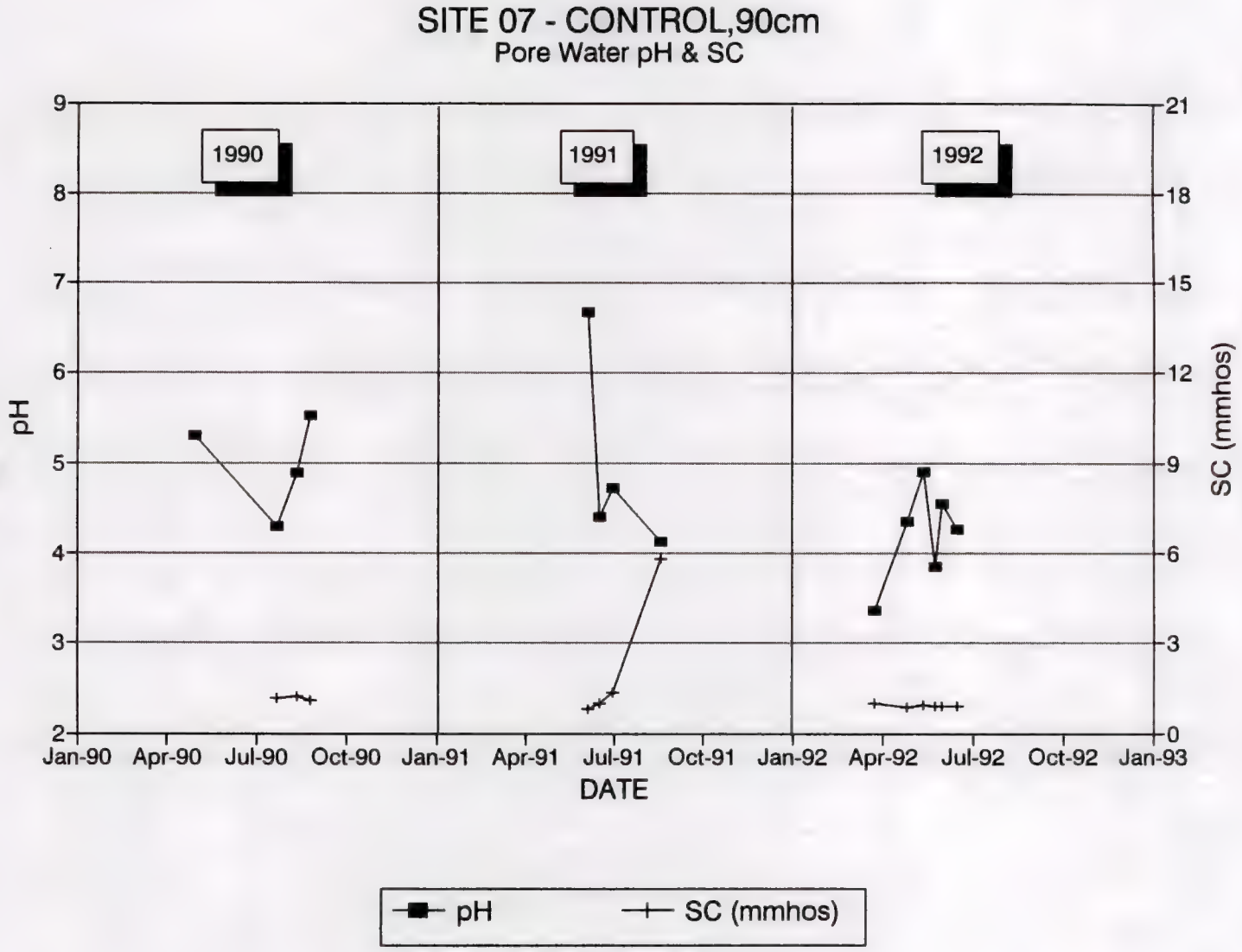

SITE 33 - CONTROL,40cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

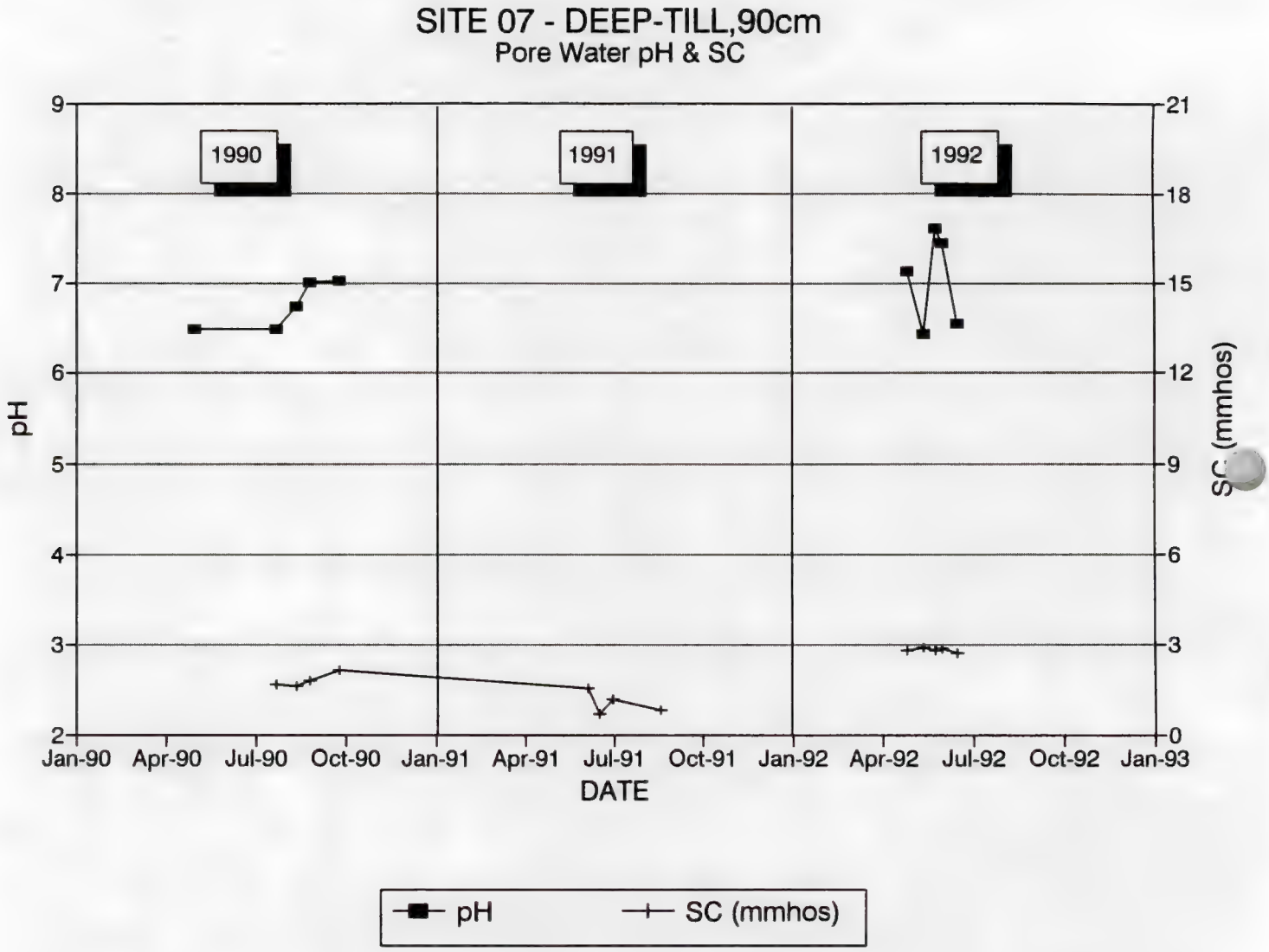

SITE 33 - DEEP-TILL,40cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

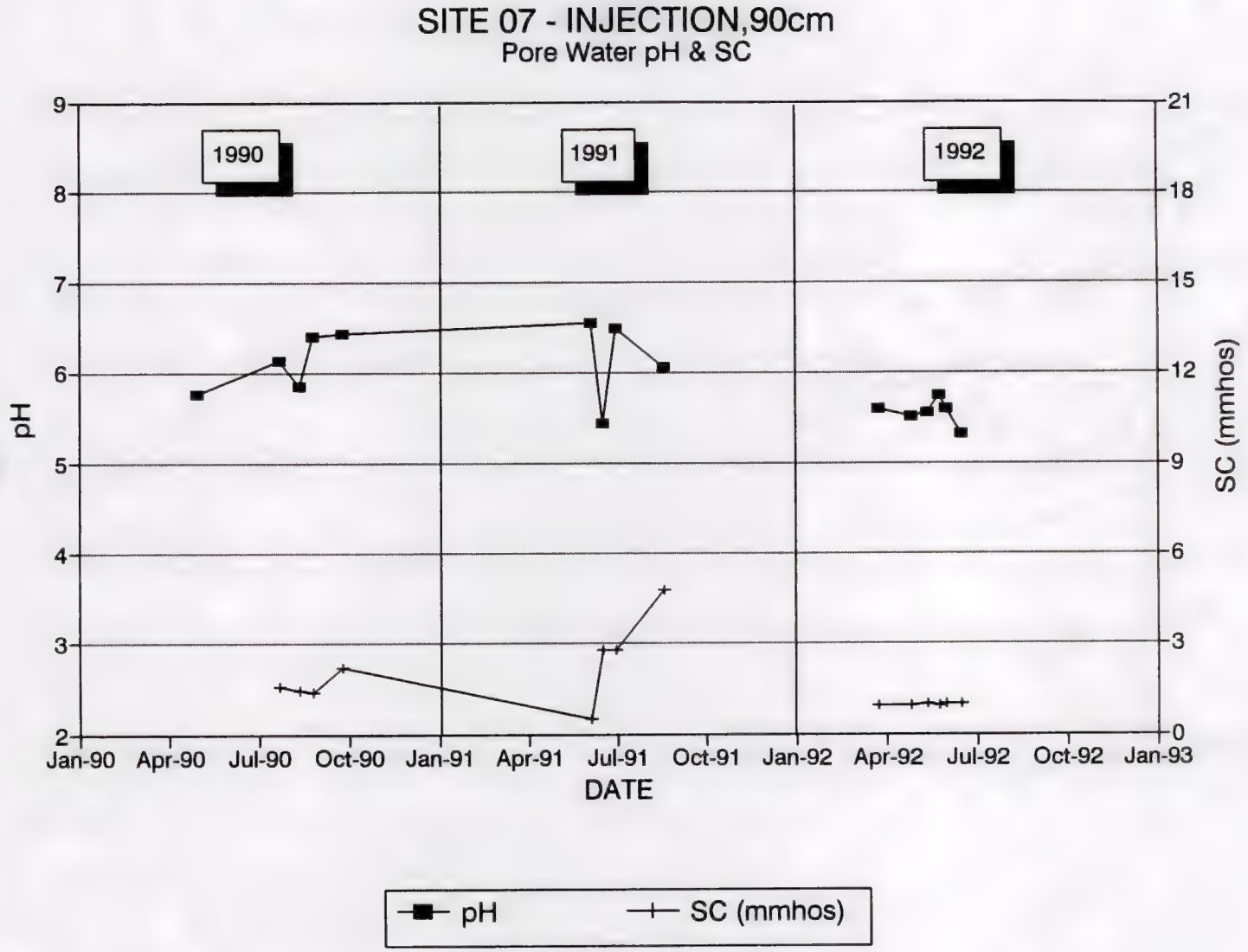

SITE 33 - INJECTION,40cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

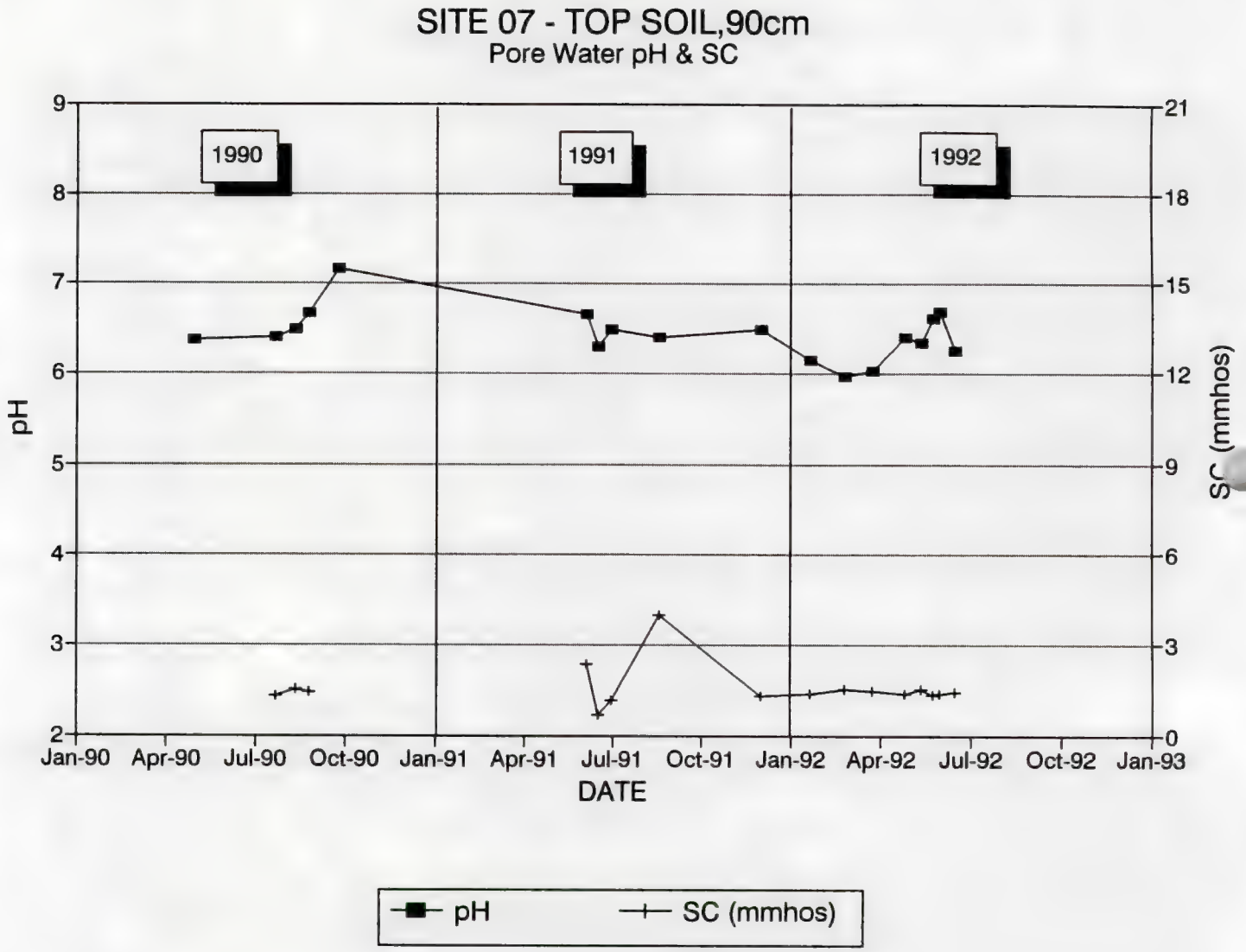

SITE 33 - TOP SOIL,40cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

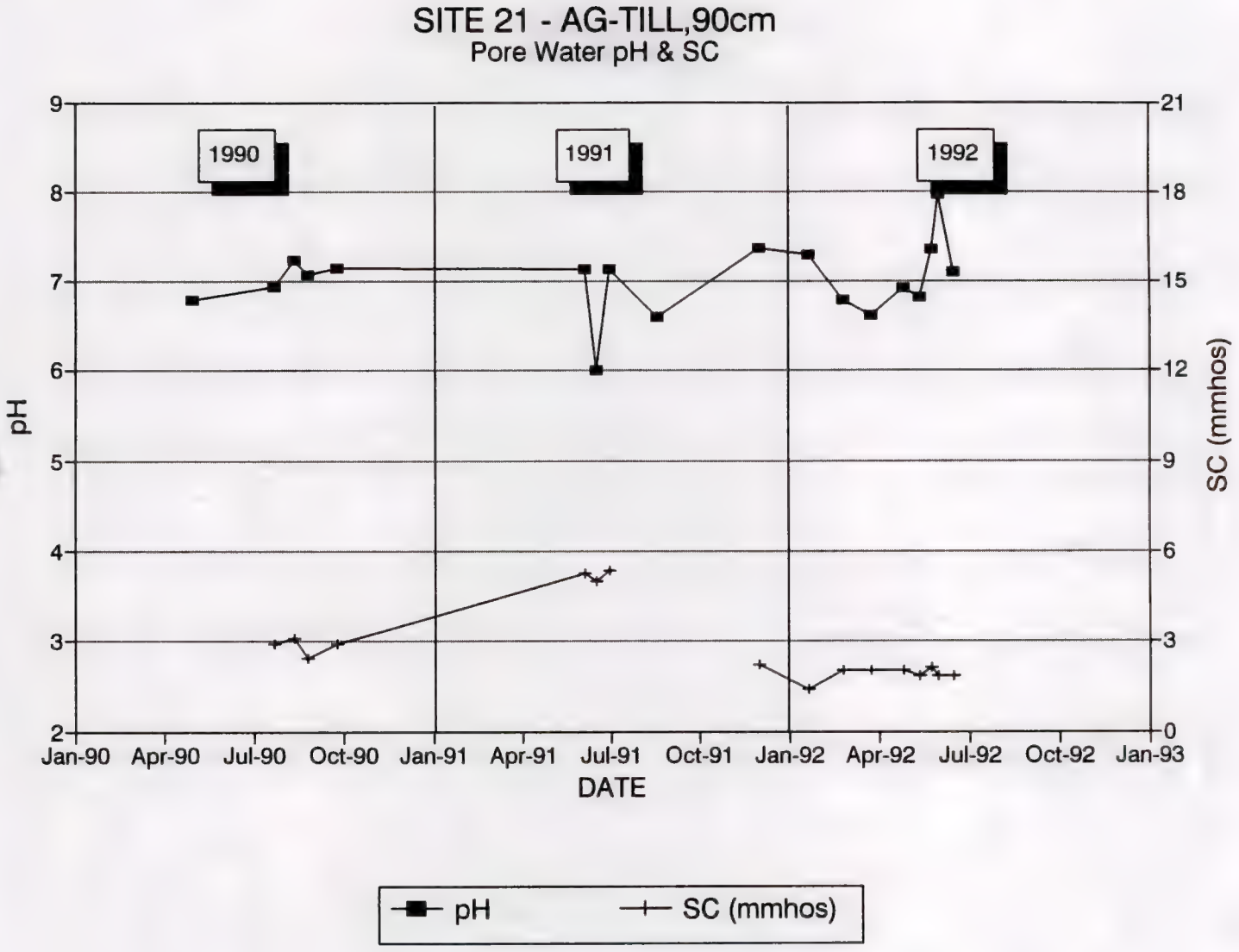

SITE 07 - AG-TILL,90cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

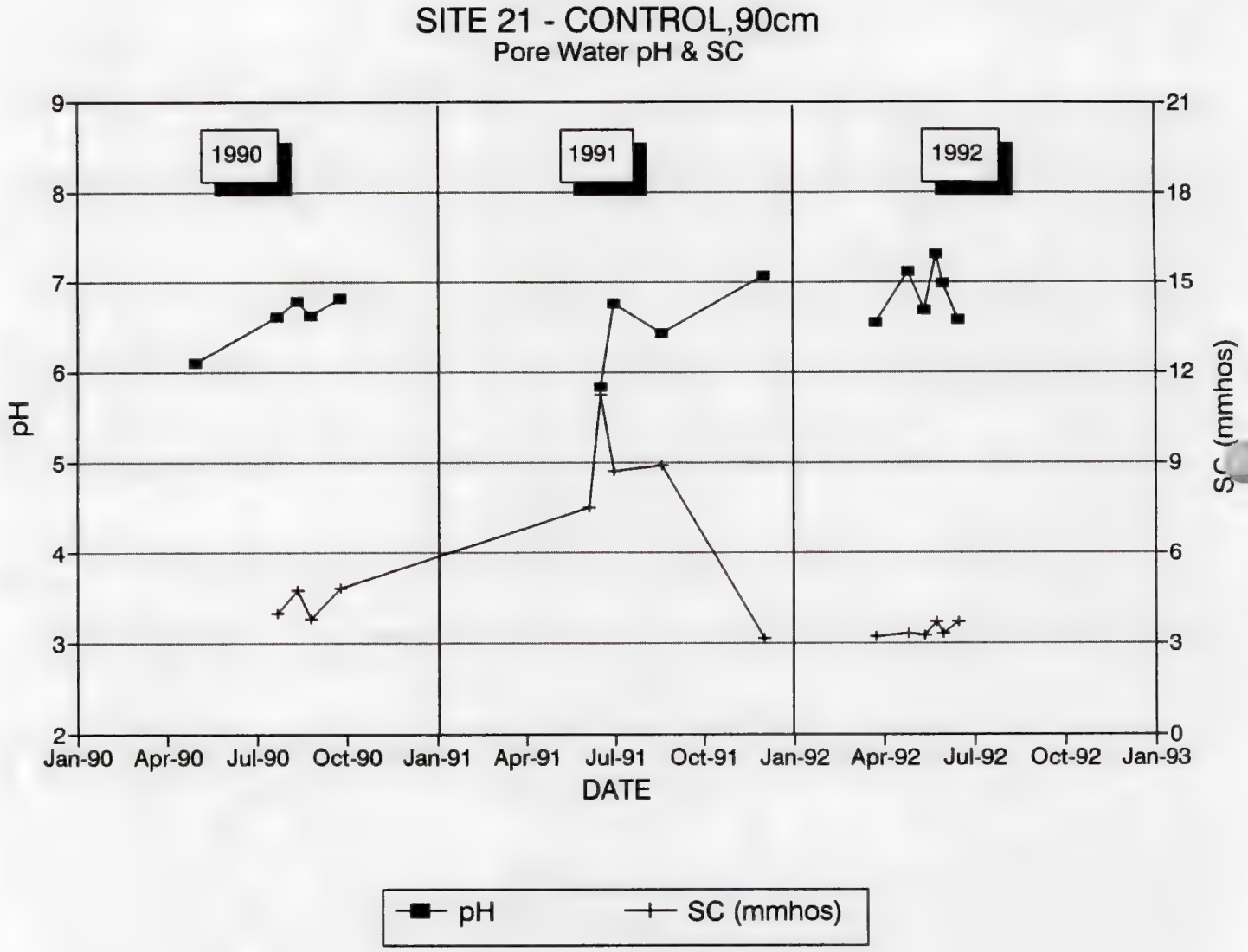

SITE 07 - CONTROL,90cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

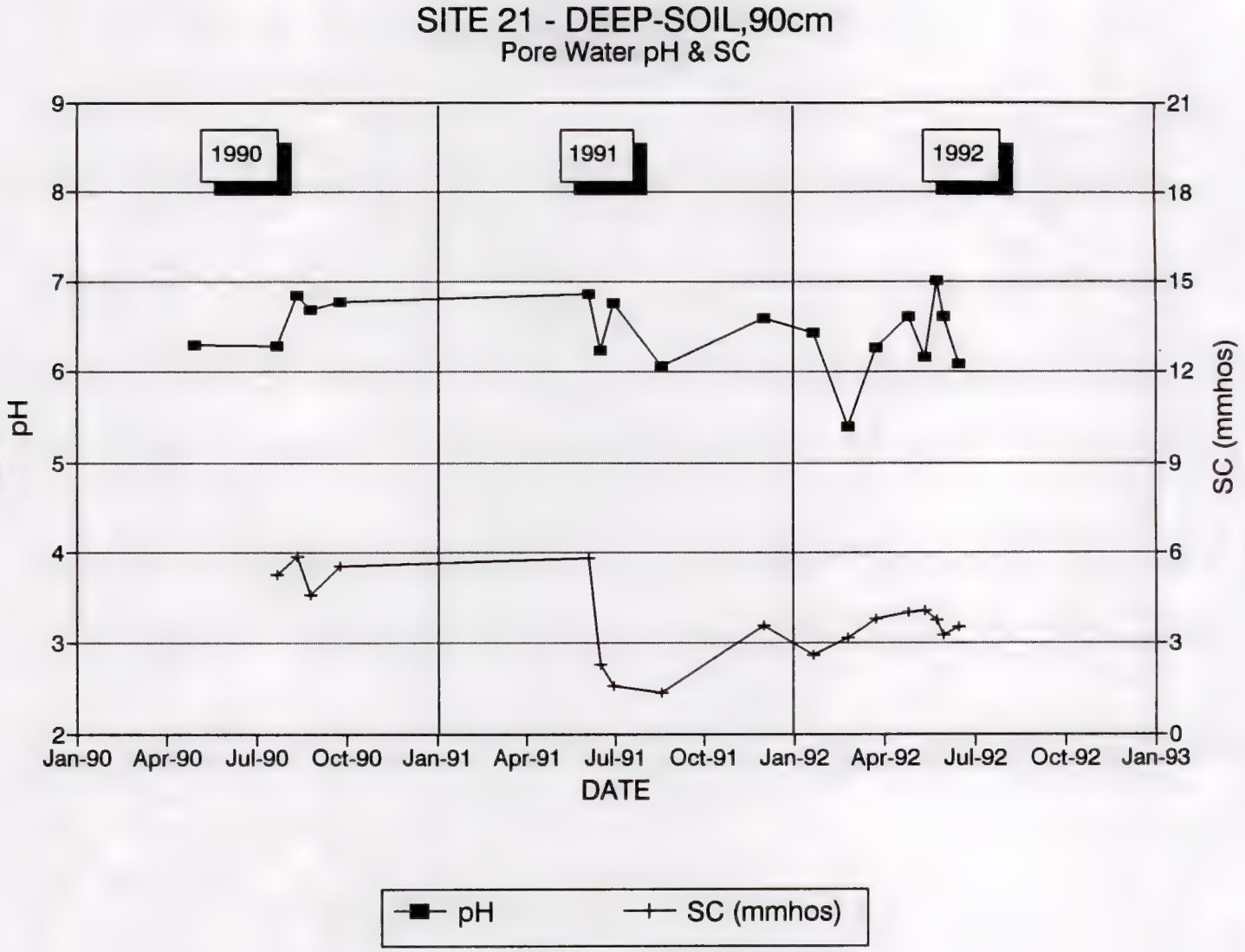

SITE 07 - DEEP-TILL,90cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
9
8
7
6
5
4
3
2
21
18
15
12
9
6
3
0
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
DATE
pH
SC (mmhos)

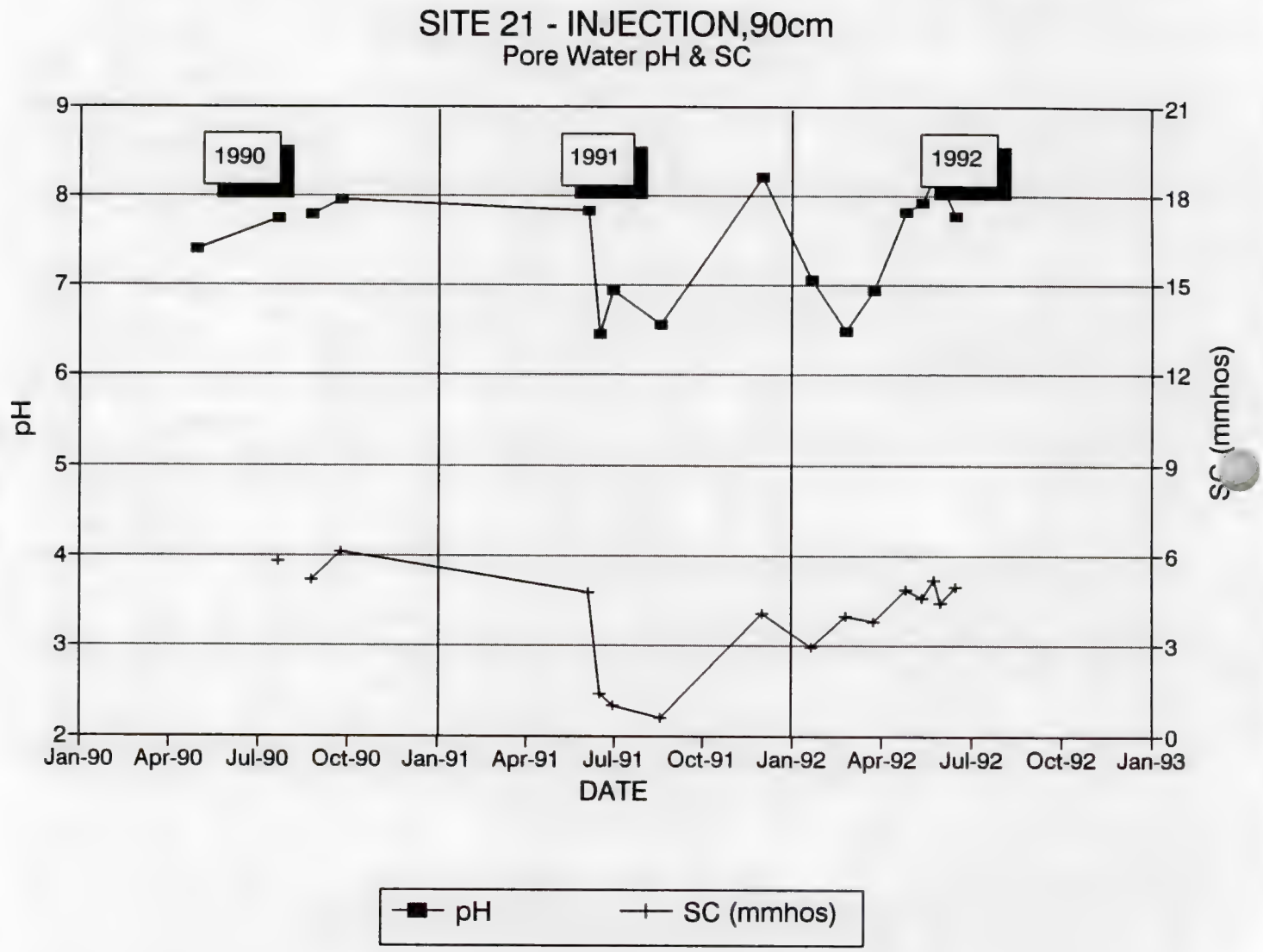

SITE 07 - INJECTION,90cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

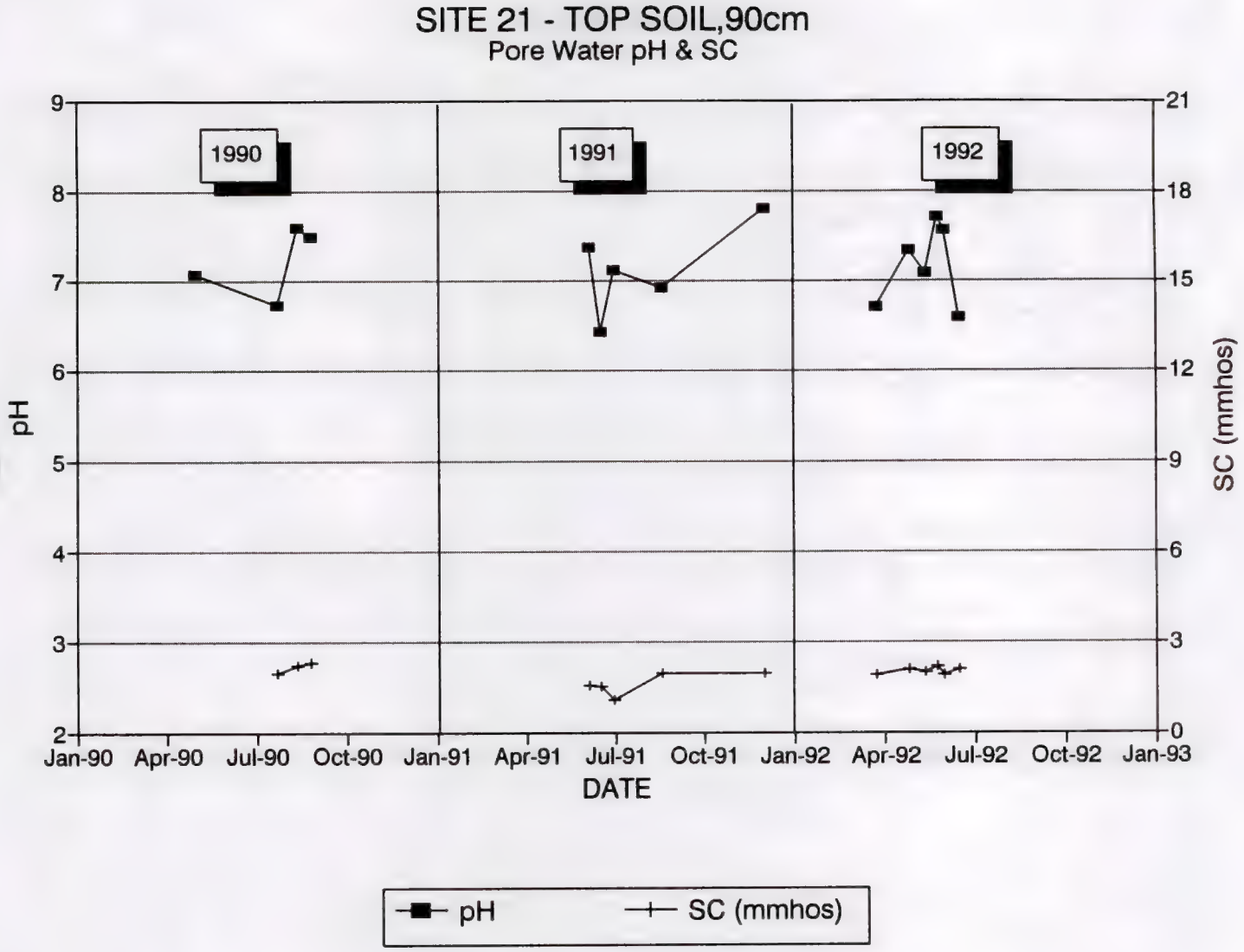

SITE 07 - TOP SOIL,90cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

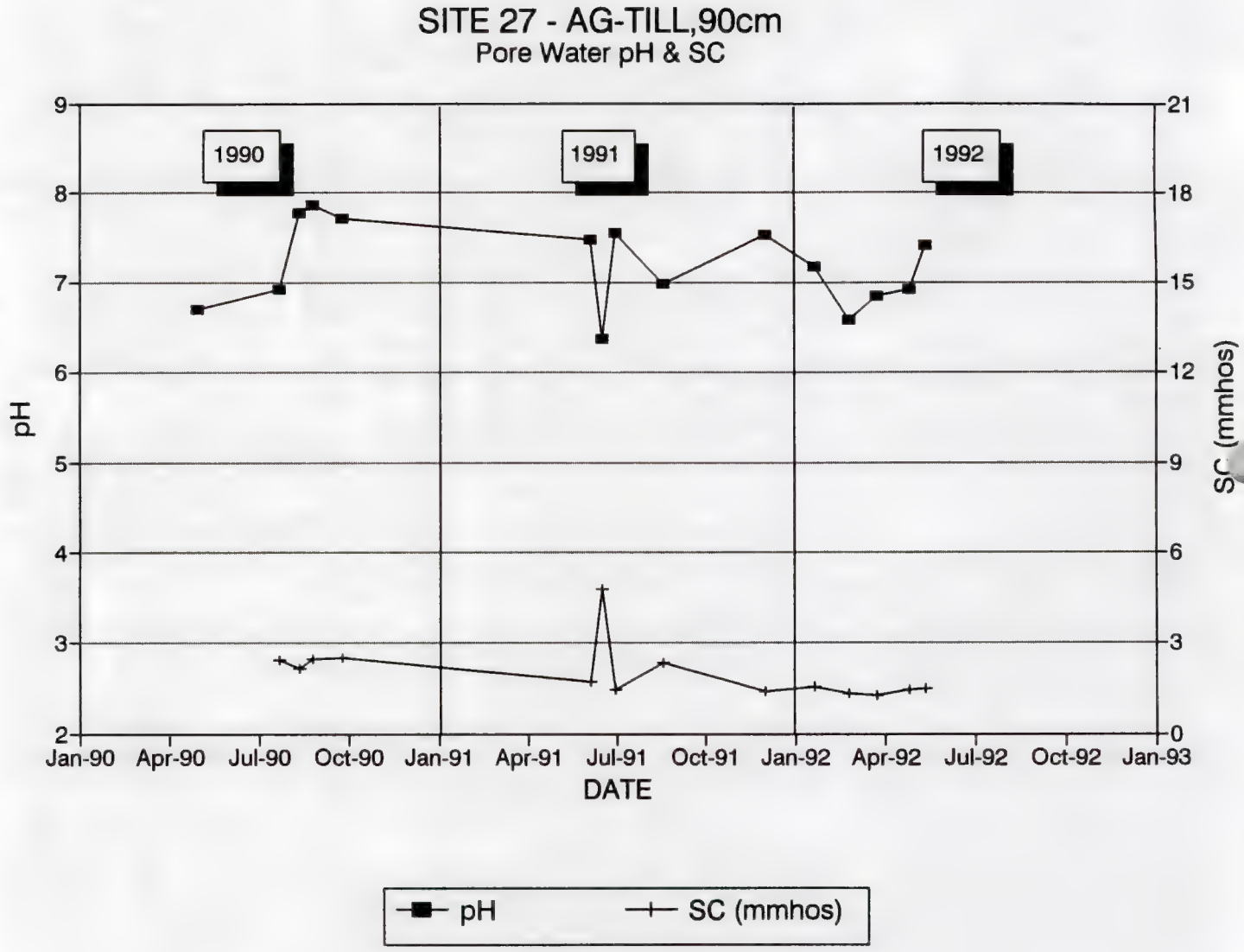

SITE 21 - AG-TILL,90cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
9
8
7
6
5
4
3
2
21
18
15
12
9
6
3
0
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

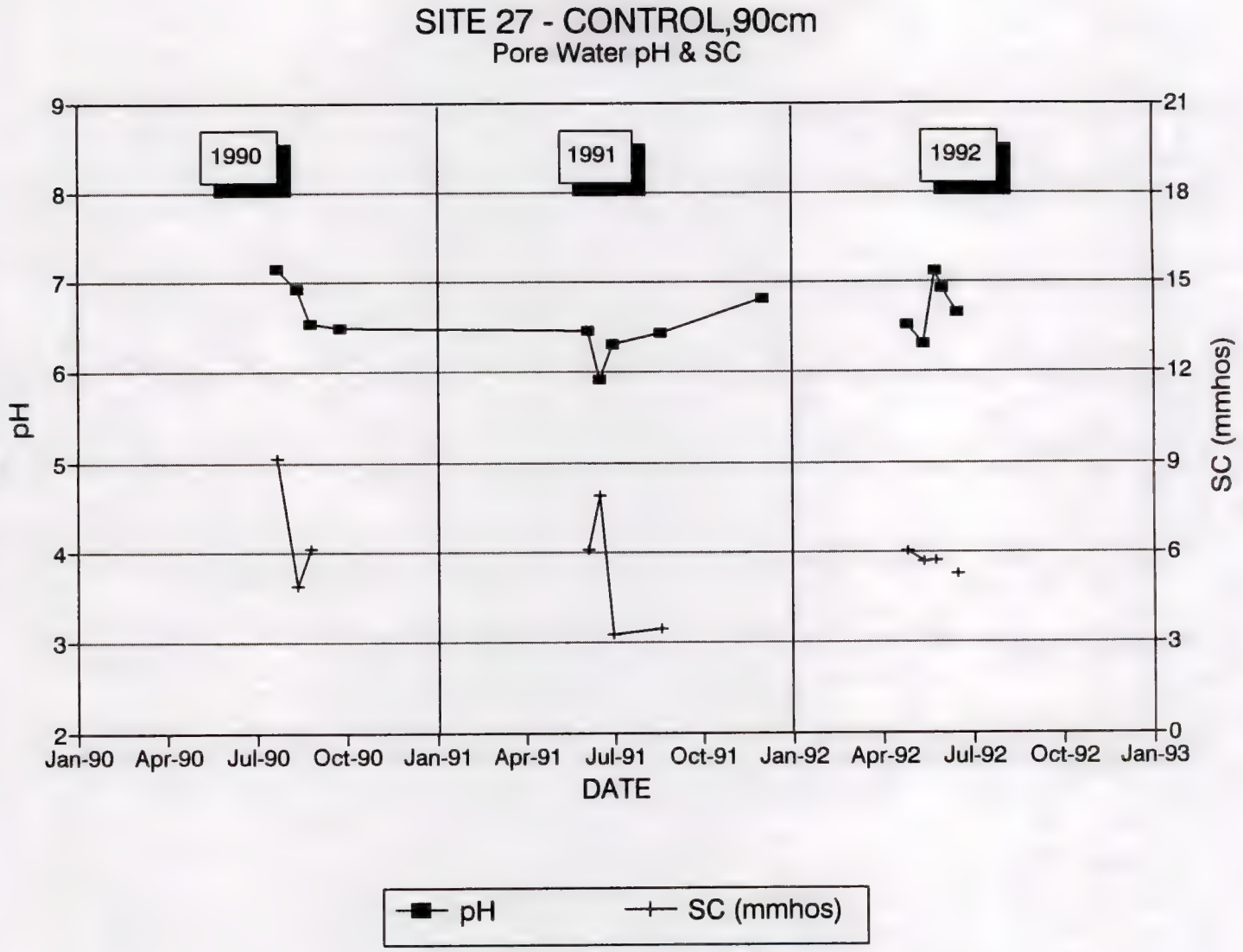

SITE 21 - CONTROL,90cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

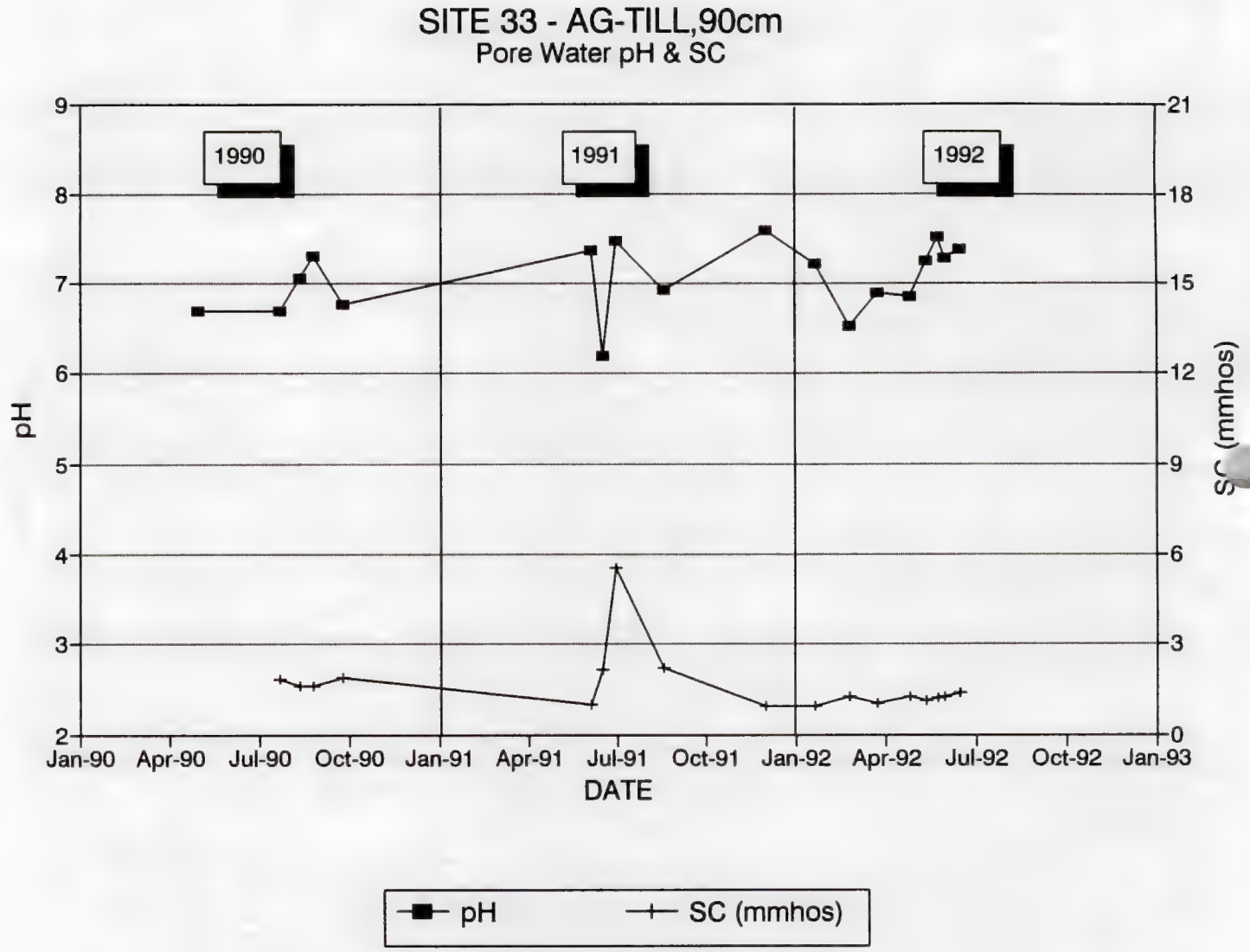

SITE 21 - DEEP-SOIL,90cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

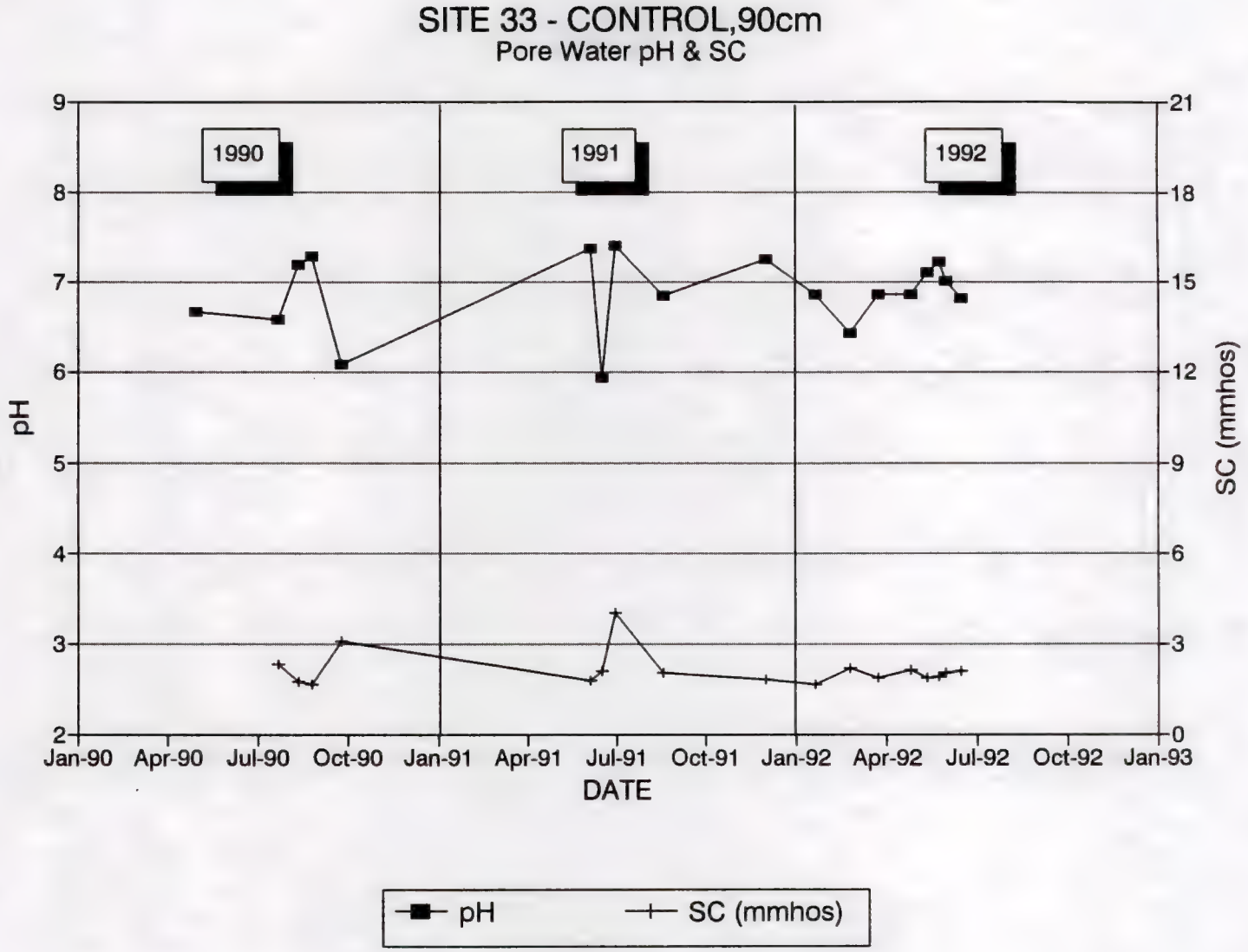

SITE 21 - INJECTION,90cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

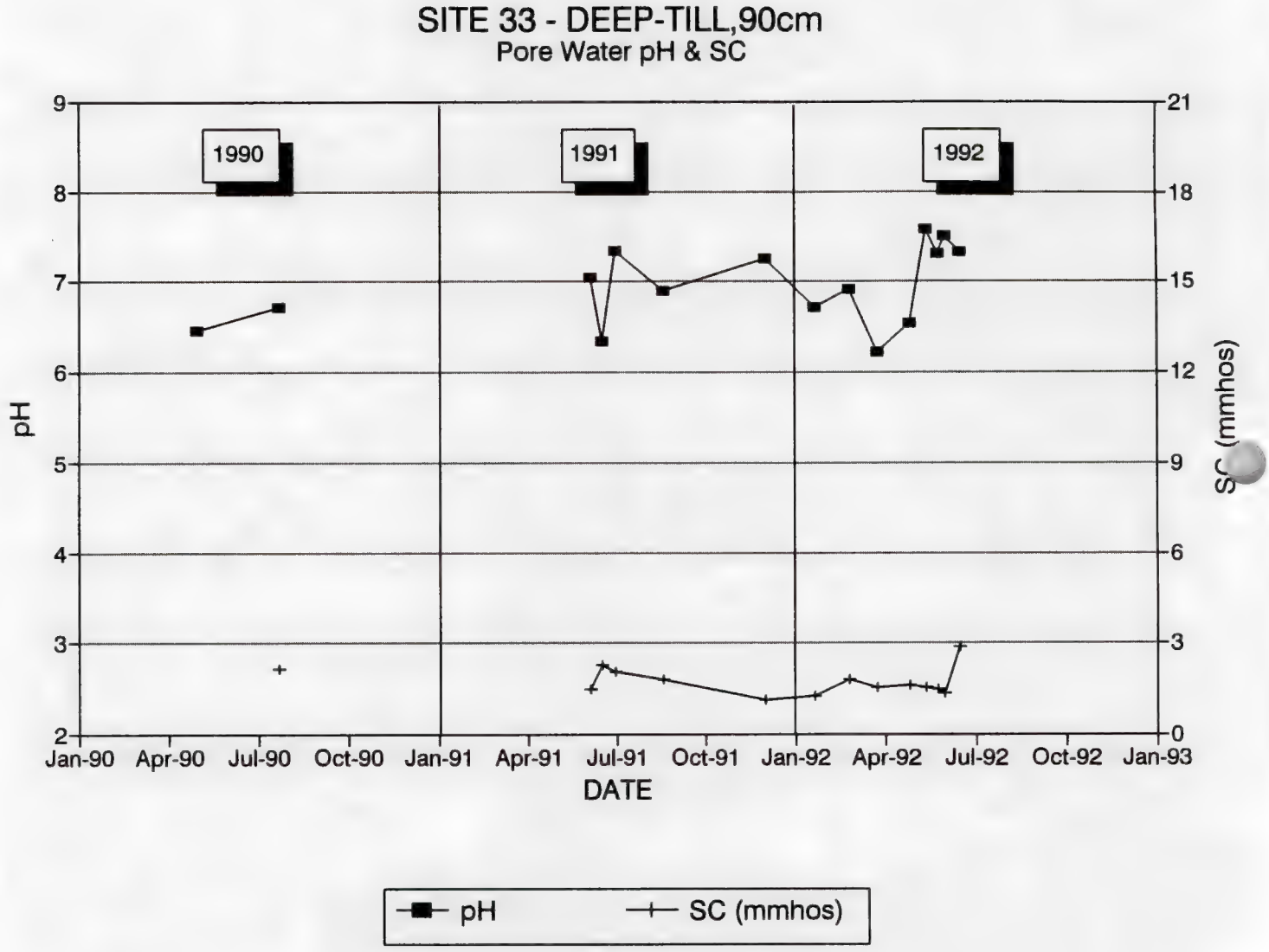

SITE 21 - TOP SOIL,90cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
9
8
7
6
5
4
3
2
21
18
15
12
9
6
3
0
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
DATE
pH
SC (mmhos)

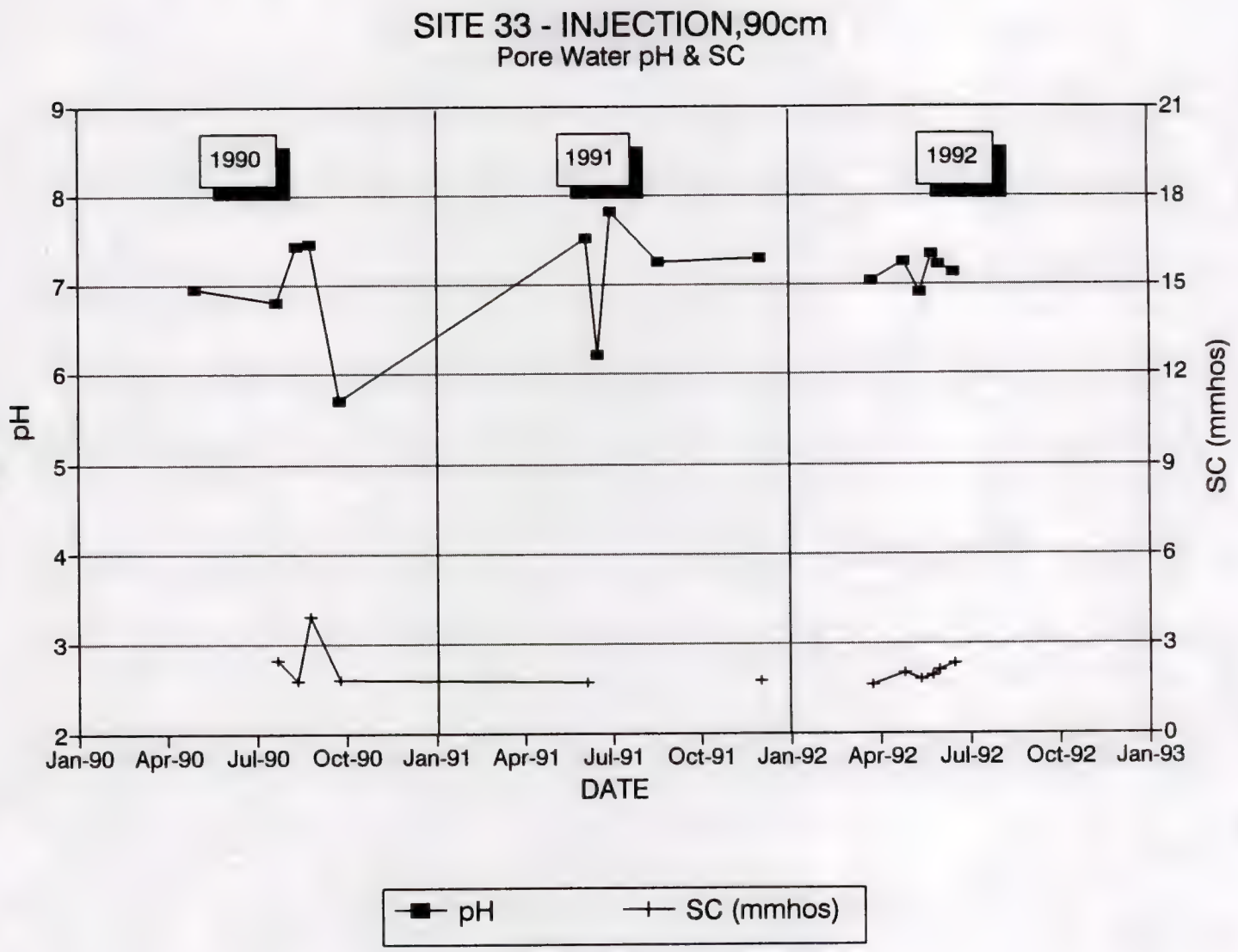

SITE 27 - AG-TILL,90cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

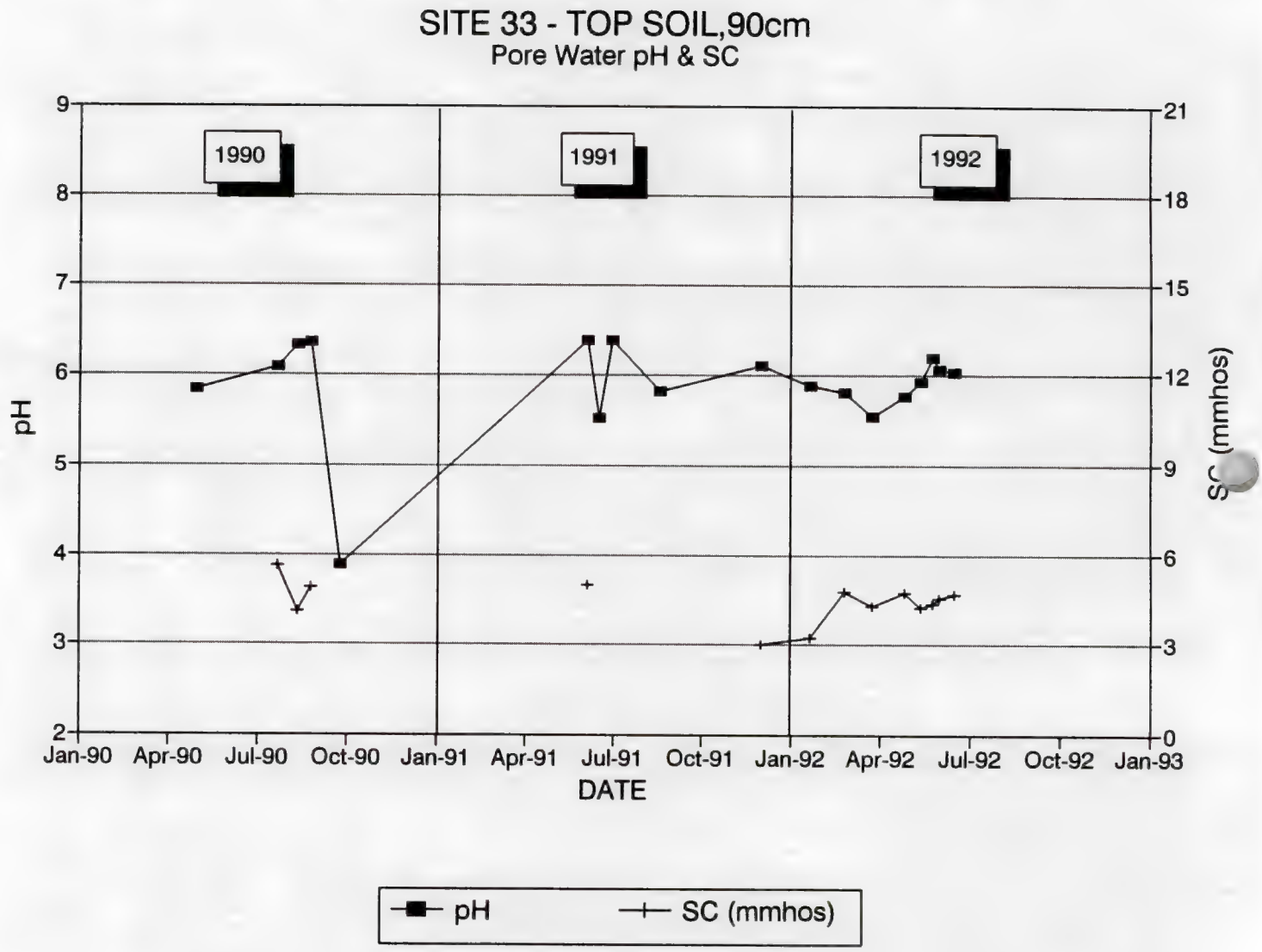

SITE 27 - CONTROL,90cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

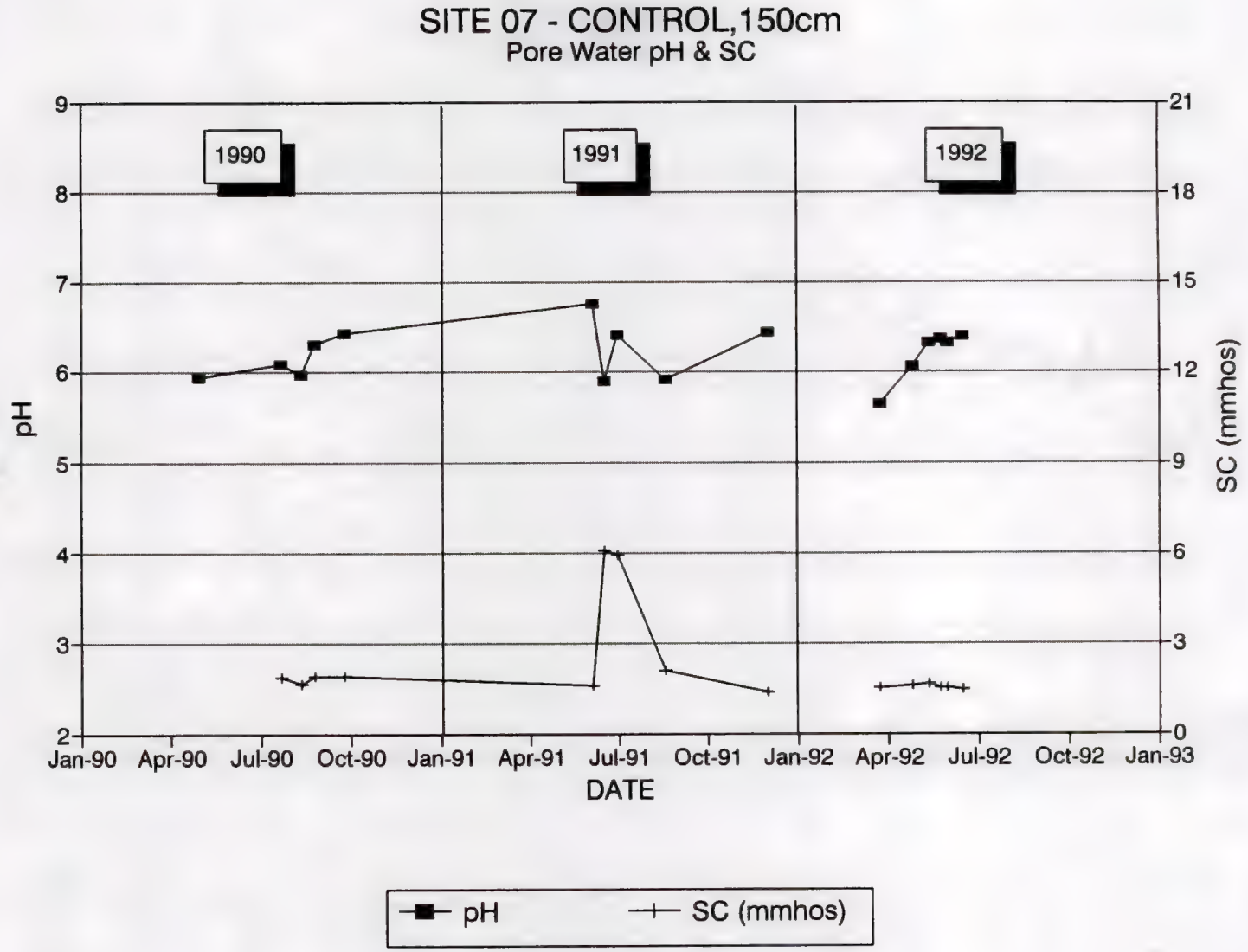

SITE 33 - AG-TILL,90cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

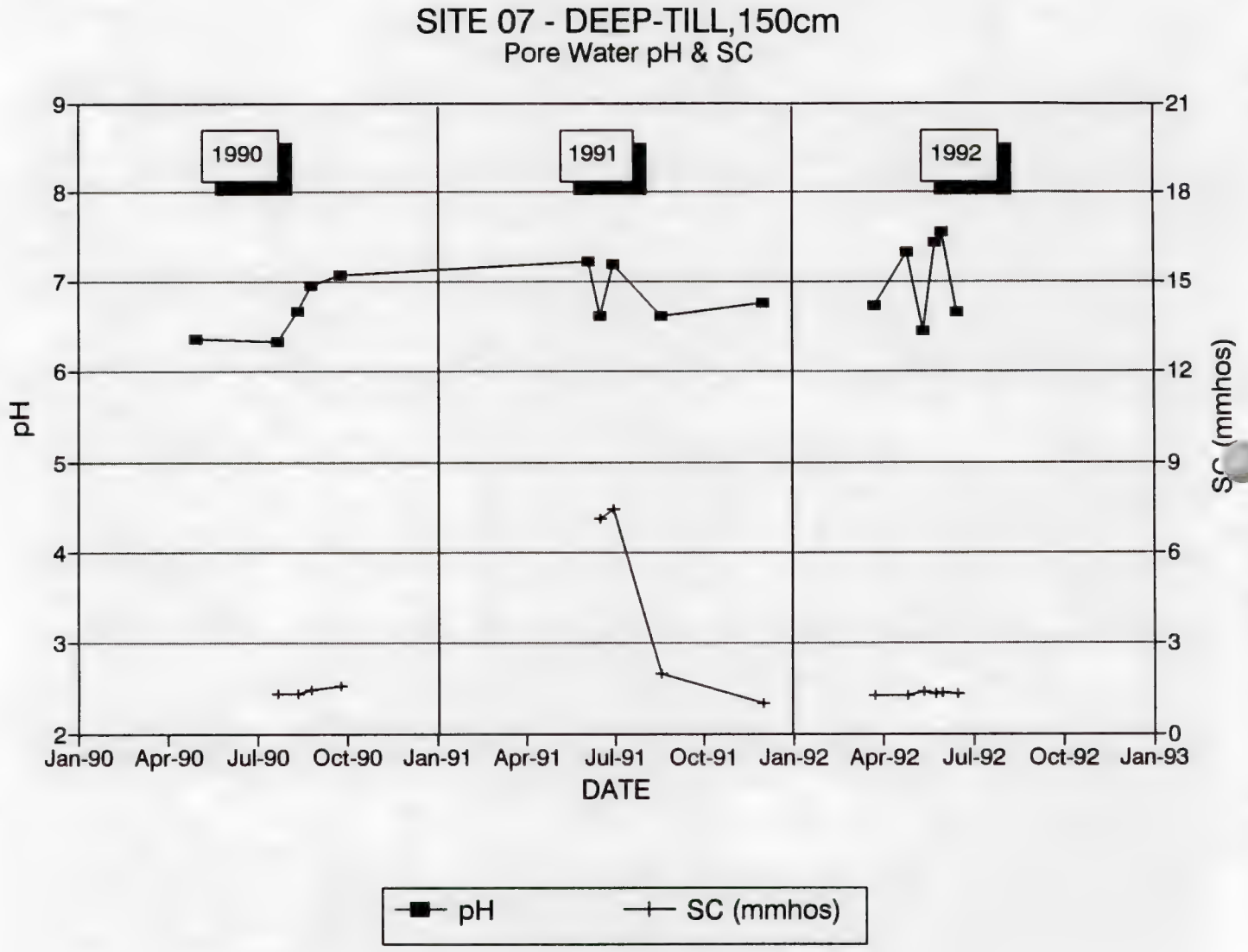

SITE 33 - CONTROL,90cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

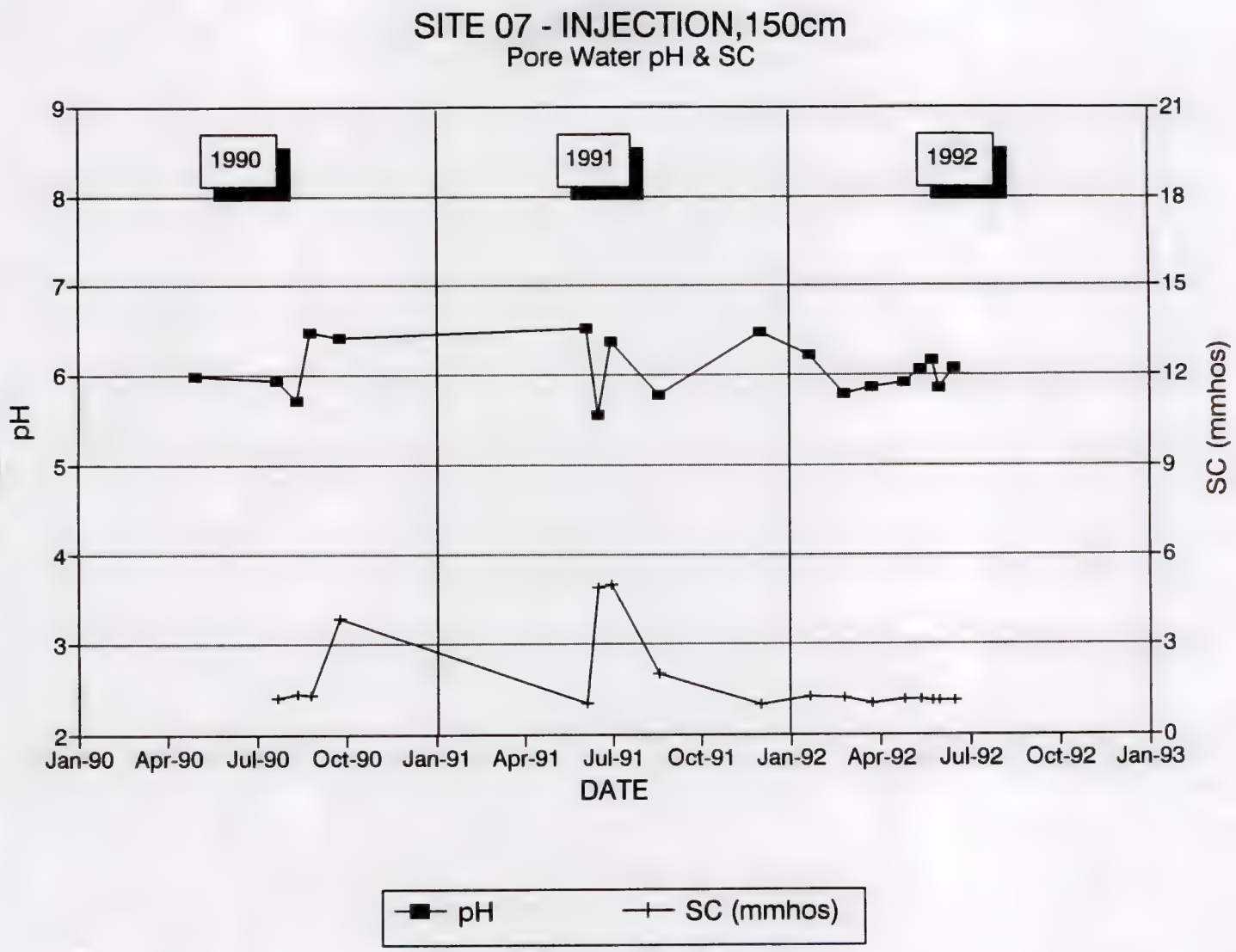

SITE 33 - DEEP-TILL,90cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

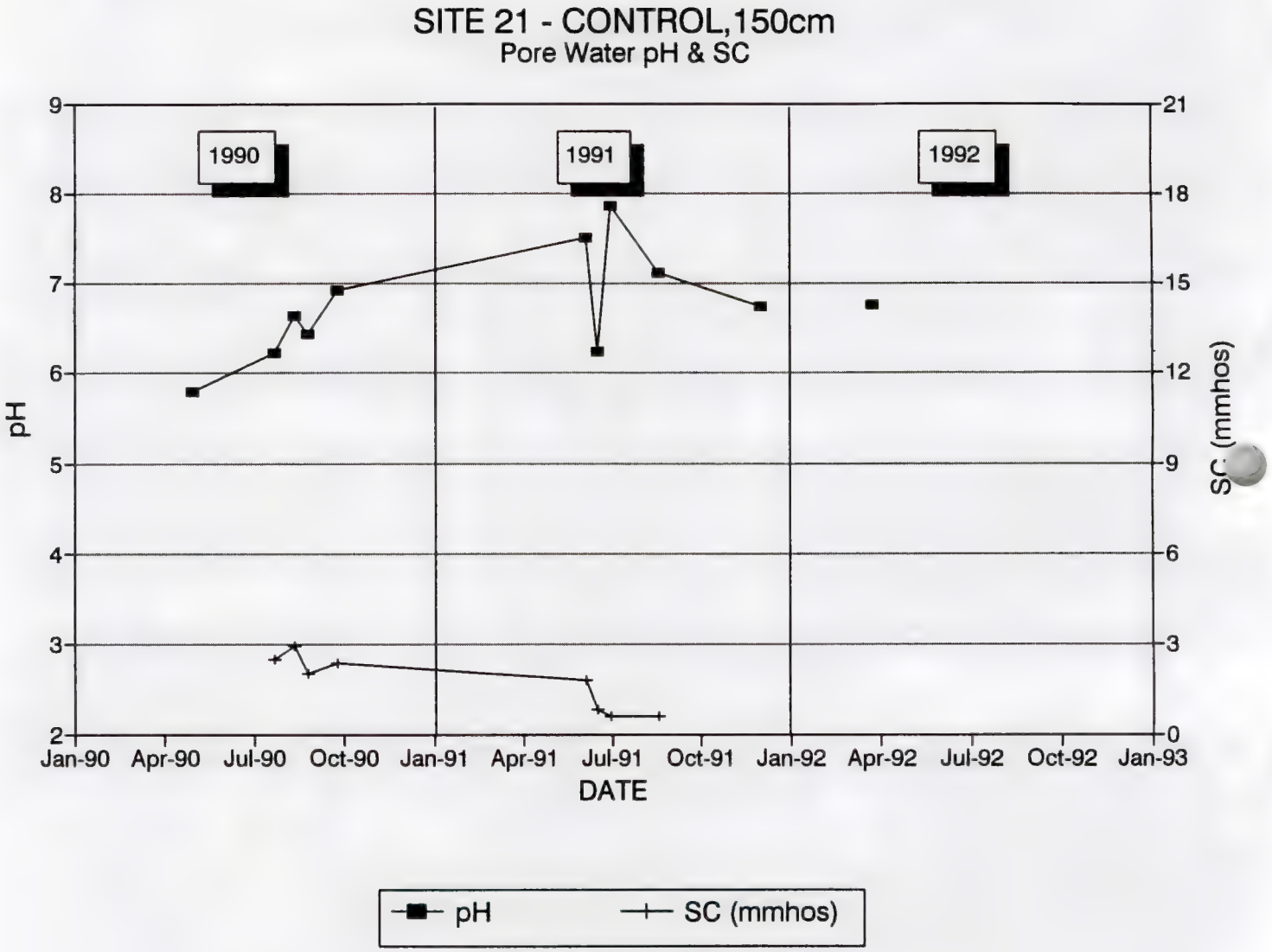

SITE 33 - INJECTION,90cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

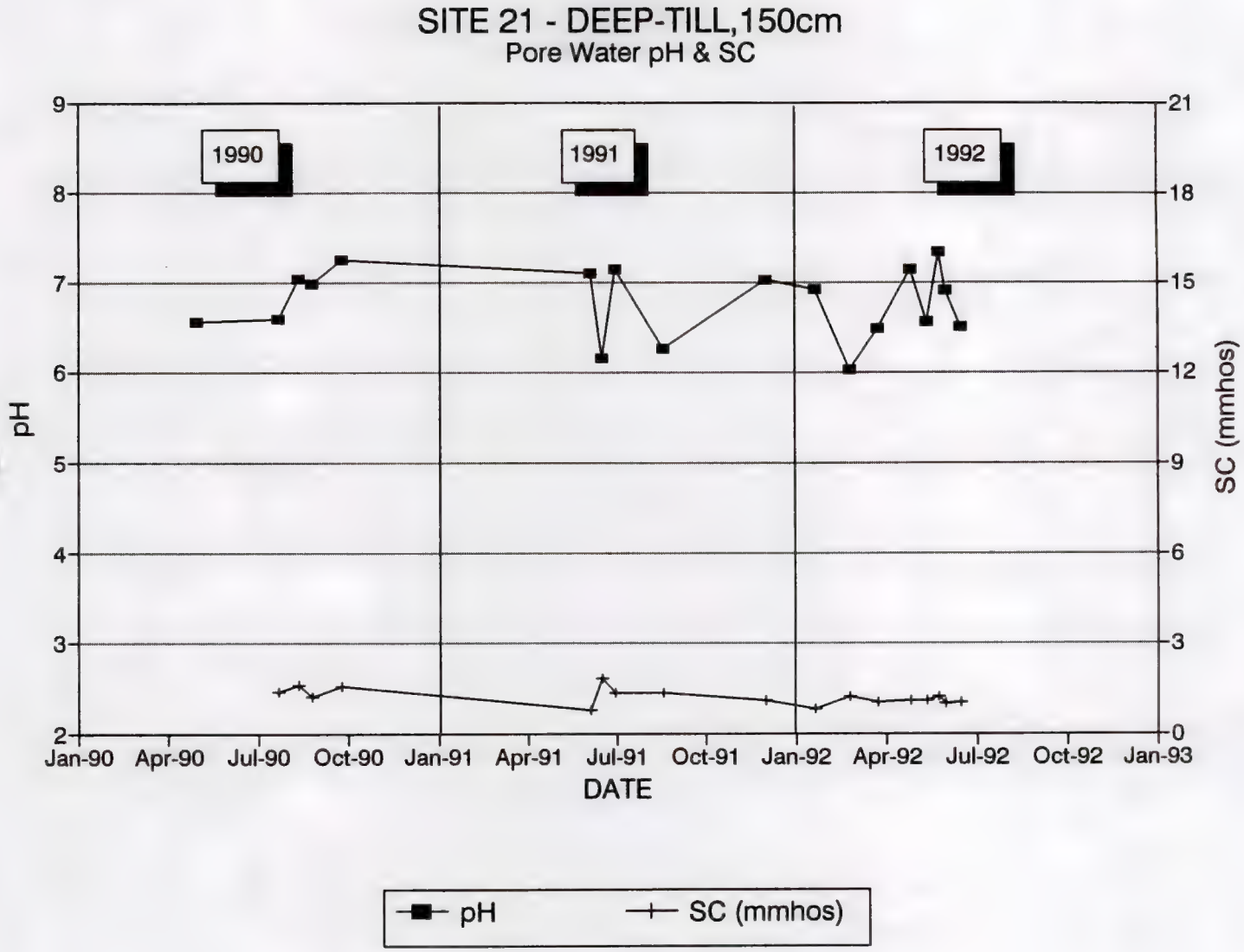

SITE 33 - TOP SOIL,90cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

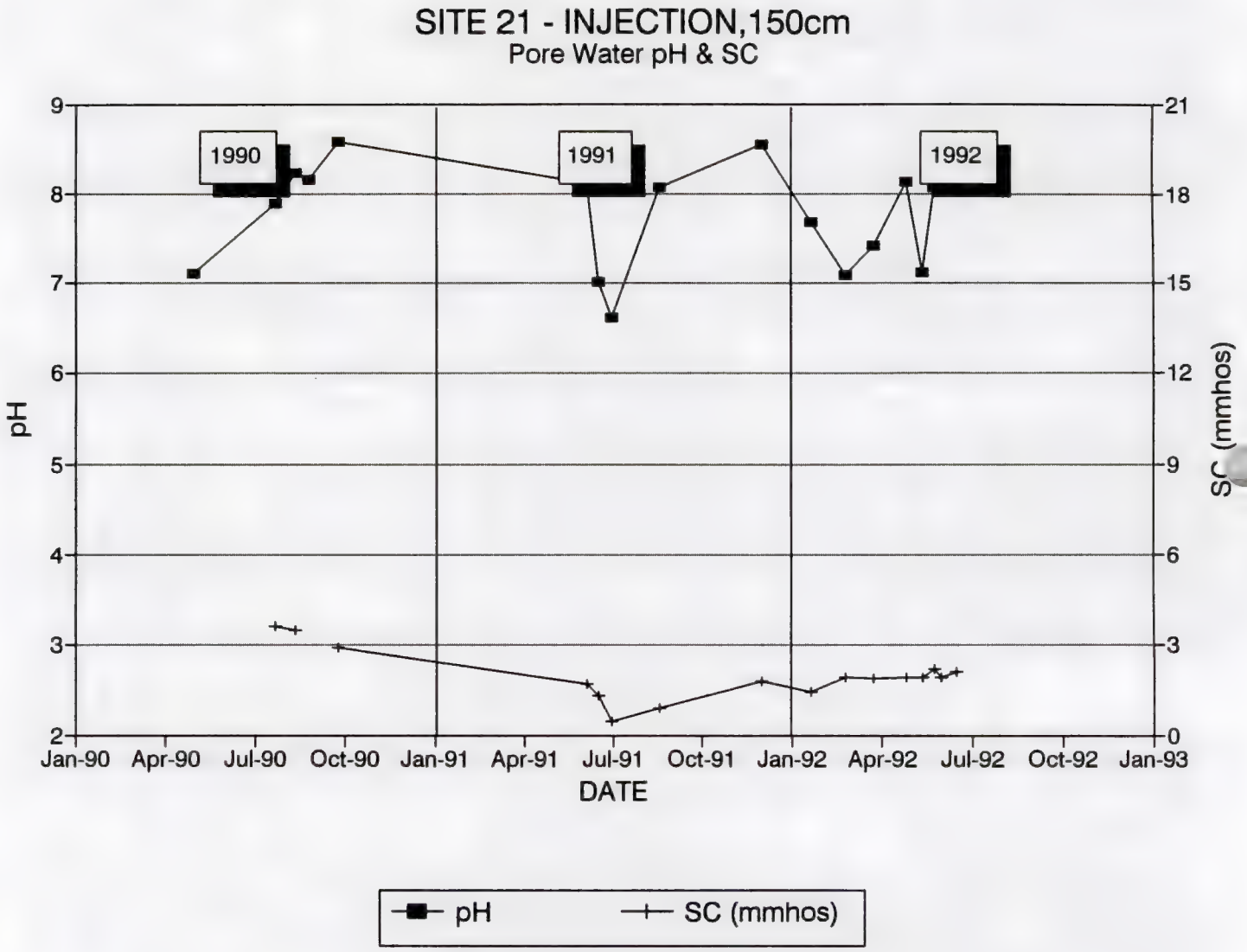

SITE 07 - CONTROL,150cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

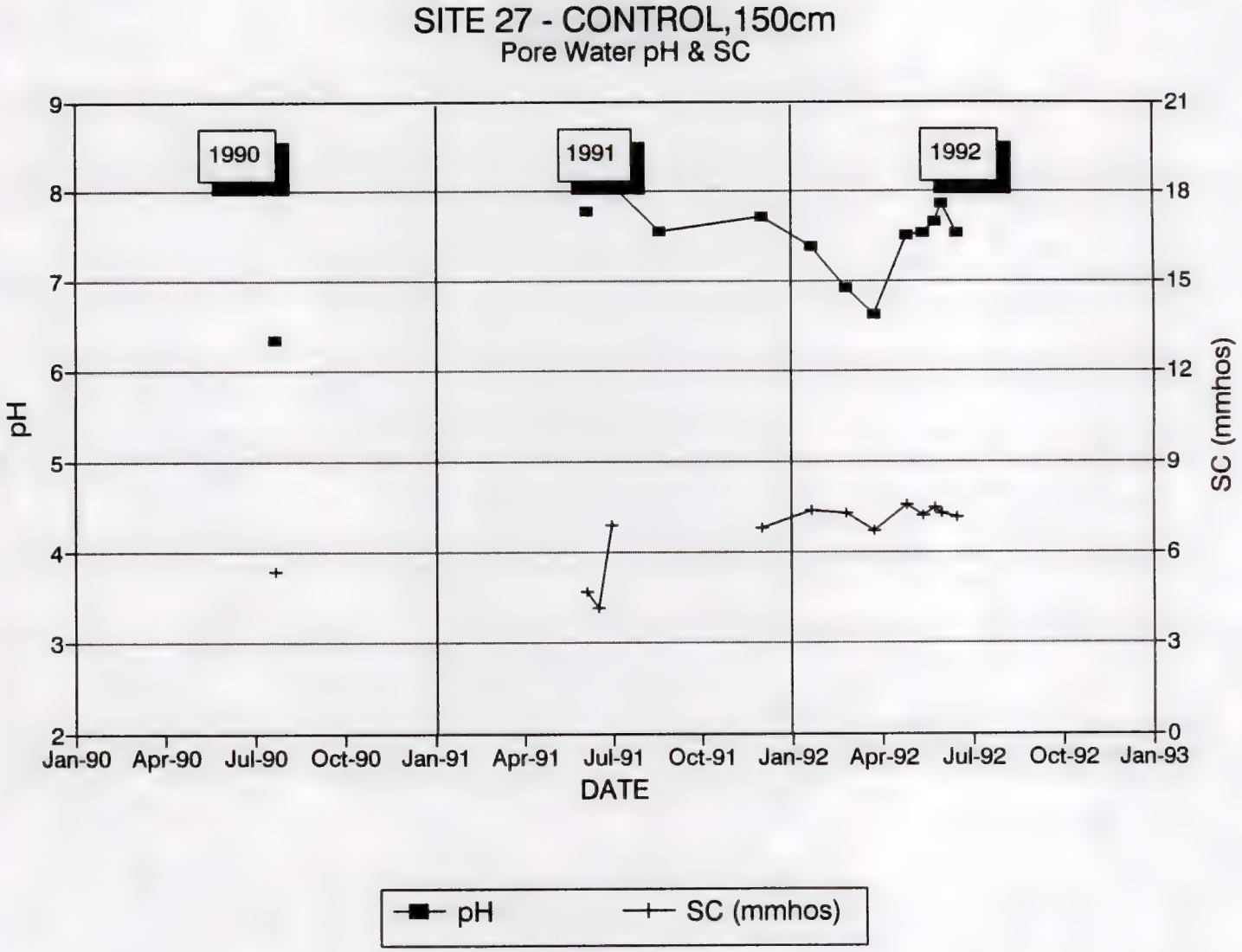

SITE 07 - DEEP-TILL,150cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

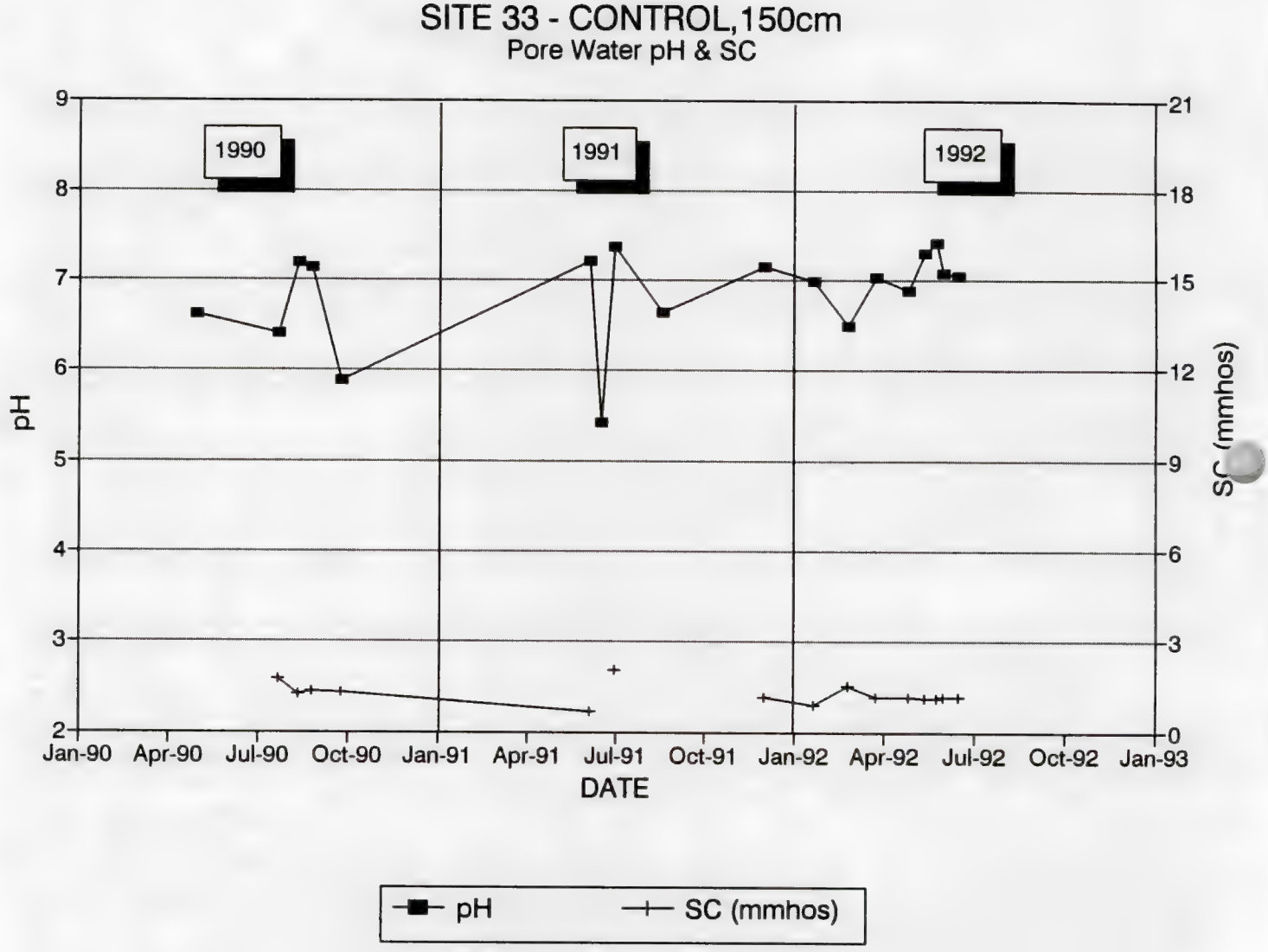

SITE 07 - INJECTION,150cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

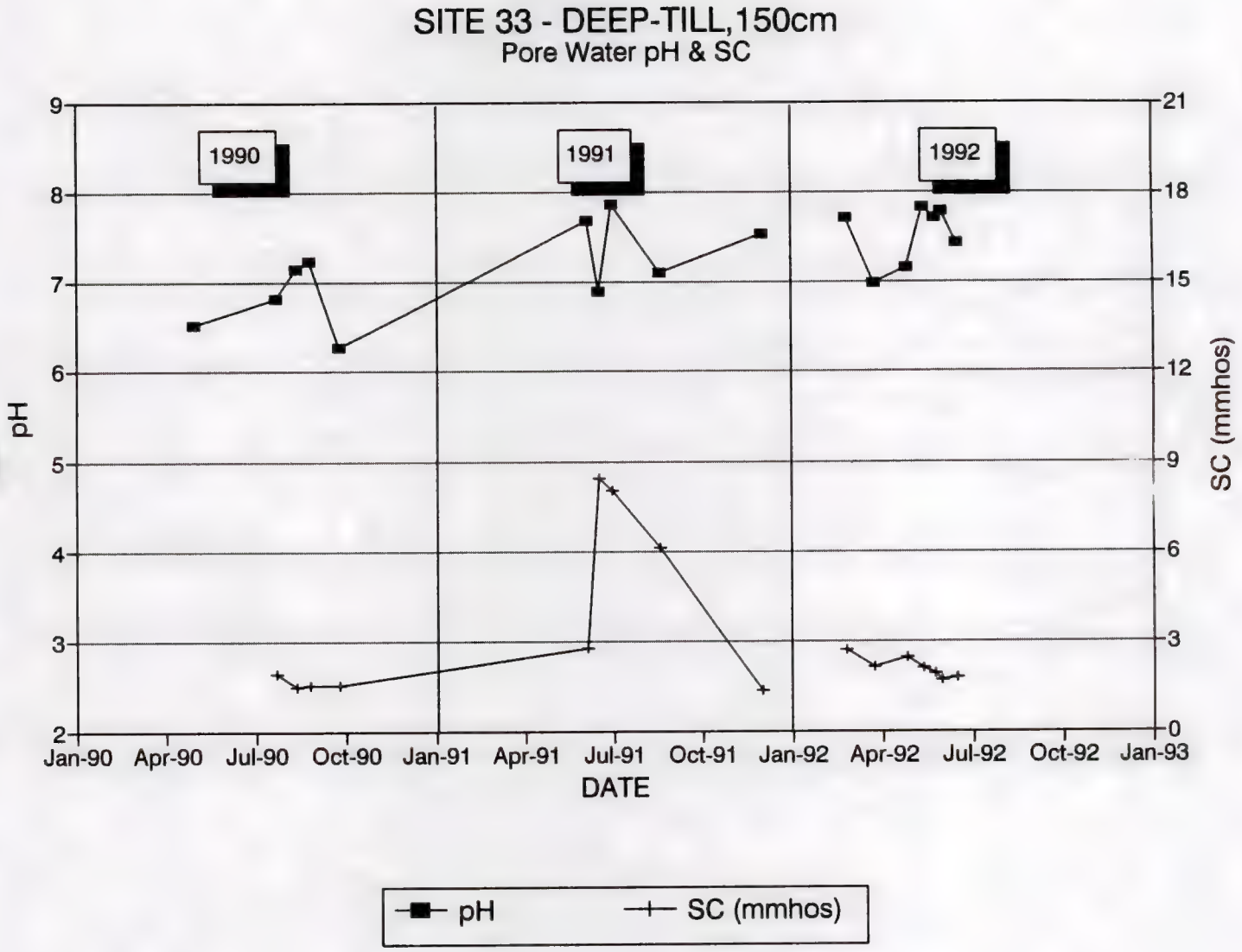

SITE 21 - CONTROL,150cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

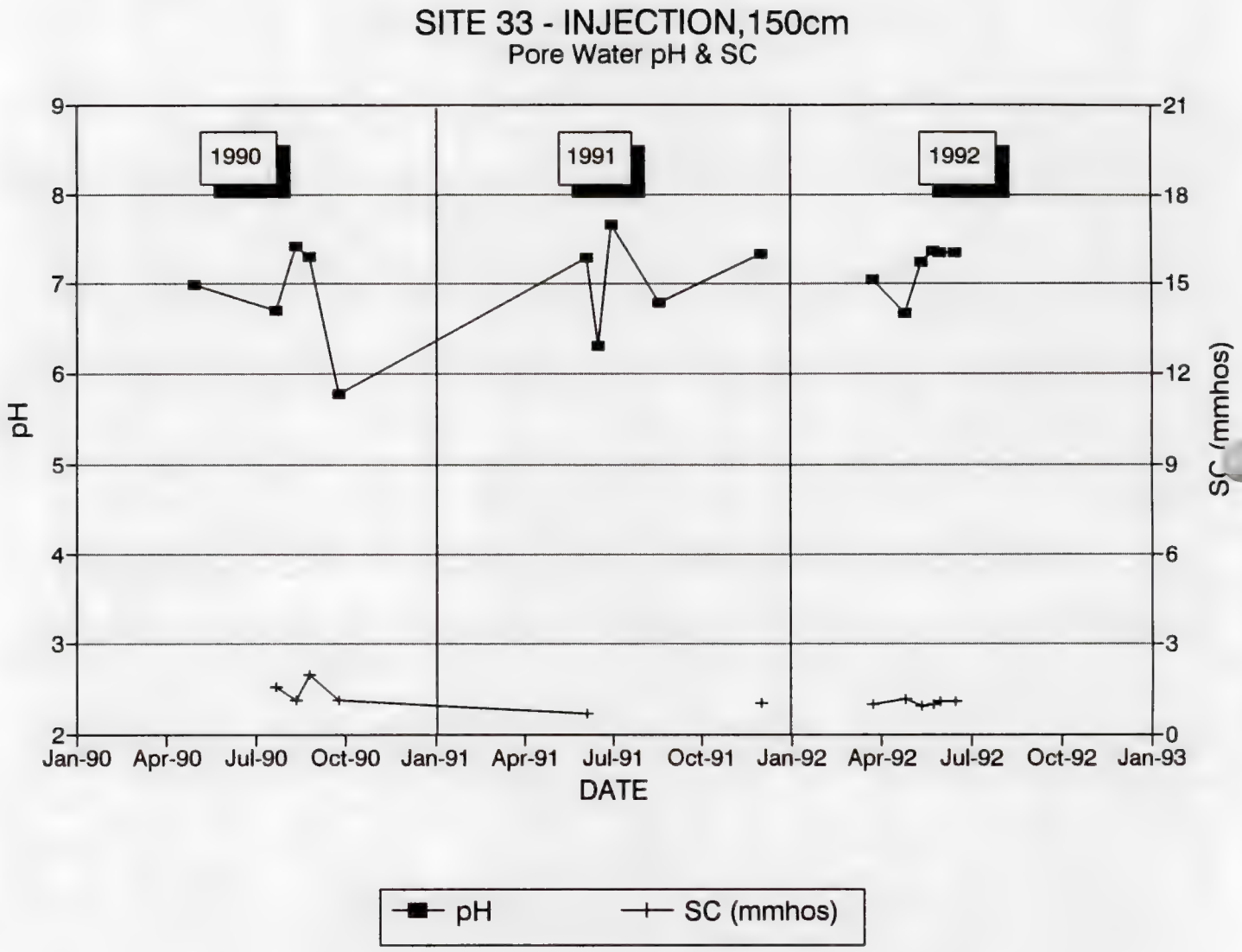

SITE 21 - DEEP-TILL,150cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
9
8
7
6
5
4
3
2
21
18
15
12
9
6
3
0
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
DATE
pH
SC (mmhos)


SITE 21 - INJECTION,150cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)


SITE 27 - CONTROL,150cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)


SITE 33 - CONTROL,150cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
9
8
7
6
5
4
3
2
21
18
15
12
9
6
3
0
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
DATE
pH
SC (mmhos)


SITE 33 - DEEP-TILL,150cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)


SITE 33 - INJECTION,150cm
Pore Water pH & SC
1990
1991
1992
pH
SC (mmhos)
DATE
Jan-90
Apr-90
Jul-90
Oct-90
Jan-91
Apr-91
Jul-91
Oct-91
Jan-92
Apr-92
Jul-92
Oct-92
Jan-93
pH
SC (mmhos)

APPENDIX B4

RUNOFF WATER CHEMISTRY

Anion metal levels (mg/L) in runoff waters from simulated rainfall test. 1992 data. STARS Phase III, Silver Bow Creek RI/FS.

Station Location	Runoff	Sample Type	Sample Number	Alka	Cl	F	NO3	NO2	PO4	TSS	SO4	Comments
07C17	Initial	N	814400	3 JB	0.5	0.2 U	0.09	0.05 U	0.05 U	120	1.5	
	Composite	N	880783	22 JB	0.1	0.2 U	0.09	0.05 U	0.05 U	60	0.8	
07I18	Initial	N	880786	98 JB	0.2	0.2 U	0.10	0.05 U	0.08	110	0.2 U	
	Composite	N	880789	95 JB	0.2	0.2 U	0.10	0.05 U	0.07	65	0.2 U	
07D14		BB	880792	26	0.1 U	0.2 U	0.07	0.05 U	0.05 U	50 U	0.2 U	Bottle Blank for Site 7
	Initial	N										Insufficient runoff for lab samples
	Composite	N										Insufficient runoff for lab samples
		BFS	880794	187	0.2	5.3	8.00	0.05 U	0.05 U	50 U	69.0	Blind Field Standard-ERA Standards
		BFS	880795							60		Blind Field Standard-ERA Standards
07A16		CCB	880798	2 U	0.1	0.2 U	0.08	0.05	0.05 U	50 U	0.2 U	Cross-Contamination Blank for Site 7
	Initial	N										No runoff obtained at this plot
	Composite	N										No runoff obtained at this plot
21A15	Initial	N	880981	151 JB	3.1	0.8	3.20	0.25	0.05 U	1690	530.0	
	Composite	N	880985	152 JB	0.9	0.4	0.70	0.05	0.05 U	1020	270.0	
21I14	Initial	N	880988	216	12.0	0.5	10.00	0.25	0.11	1240	1200.0	
	Composite	N	880991	315	1.8	0.2	1.30	0.05	0.06	590	290.0	
21D17	Initial	N	880994	142 JB	4.5	0.4	1.20	0.05	0.05 U	320	290.0	
	Composite	N	880997	92 JB	1.7	0.3	0.30	0.05	0.05 U	120	160.0	
		R	881000	83 JB	1.7	0.3	0.30	0.05	0.05 U	75	160.0	Field Replicate of 21D17-Composite
		CCB	814355	29	0.3	0.2 U	0.05 U	0.05	0.05 U	50 U	0.4	Cross-Contamination Blank for Site 21
		BB	814358	2 U	0.1 U	0.2 U	0.05 U	0.05	0.05 U	50 U	0.2	Bottle Blank for Site 21
		BFS	814360	262	0.2	5.2	8.00	0.05	0.05 U	50 U	70.0	Blind Field Standard-ERA Standards
		BFS	814361							75		Blind Field Standard-ERA Standards
21C18	Initial	N	814364	2 U	53.0	0.5	38.00	5.00 U	0.06	2570	3800.0	
	Composite	N	814367	2 U	11.0	0.7	6.30	0.05 U	0.05 U	810	980.0	
21T13	Initial	N										No runoff obtained at this plot
	Composite	N										No runoff obtained at this plot
33A07	Initial	N	814370	102	3.3	0.7 U	0.40	0.05 U	0.05 U	320	130.0	
	Composite	N	814373	31	0.8	0.2 U	0.18	0.05 U	0.05 U	115	61.0	
33D08	Initial	N										No runoff obtained at this plot
	Composite	N										No runoff obtained at this plot
33I10	Initial	N	814376	72	0.7	0.3	0.20	0.08 U	0.06	1120	160.0	
	Composite	N	814378	20	0.5	0.2 U	0.14	0.05 U	0.05 U	50 U	48.0	
33T09	Initial	N										No runoff obtained at this plot
	Composite	N										No runoff obtained at this plot
33C12	Initial	N	814382	2 U	7.9	1.6	3.50	0.25 U	0.05 U	4320	490.0	
	Composite	N	814385	2 U	1.9	0.6	0.70	0.05 U	0.05 U	945	130.0	
		R	814388	2 U	1.9	0.6	0.70	0.05	0.05 U	1050	130.0	Field Replicate of 33C12-Composite
		BB	814391	2 U	0.1	0.2 U	0.05 U	0.05 U	0.05 U	50 U	0.2	Bottle Blank for Site 33
		CCB	814394	2 U	0.1	0.2 U	0.05 U	0.05 U	0.05 U	50 U	0.2	Cross-Contamination Blank for Site 33
		BFS	814396	67	0.2	5.2	7.90	0.05 U	0.05 U	35	69.0	Blind Field Standard-ERA Standards
		BFS	814397							60		Blind Field Standard-ERA Standards

Total metal levels (ug/L) in runoff waters from simulated rainfall tests. 1992 data. STARS Phase III, Silver Bow Creek RI/FS.

Station Location	Runoff	Sample Type	Sample Number	Cu	Fe	Mn	Zn	Comments
07C17	Initial	N	814398	173.0	2360.0	213.0	154.0	
	Composite	N	880781	94.3	1370.0	145.0	80.8	
07I18	Initial	N	880784	236.0	3370.0	357.0	203.0	
	Composite	N	880787	124.0	1820.0	191.0	125.0	
07D14		BB	880790	3.0 U	10.4	1.0 U	2.2	Bottle Blank for Site 7
	Initial							Insufficient runoff for lab samples
	Composite							Insufficient runoff for lab samples
07A16		CCB	880796	12.9	60.0	7.8	13.4	Cross-Contamination Blank for Site 7
	Initial	N						No runoff obtained at this plot
	Composite	N						No runoff obtained at this plot
21A15	Initial	N	880978	19500.0	75600.0	23700.0	26600.0	
	Composite	N	880983	10400.0	34600.0	11000.0	14200.0	
21I14	Initial	N	880986	11300.0	54700.0	11900.0	12500.0	
	Composite	N	880989	4330.0	12500.0	4330.0	4980.0	
21D17	Initial	N	880992	3310.0	11900.0	15600.0	8510.0	
	Composite	N	880995	1530.0	4960.0	7520.0	4040.0	
		R	880998	1200.0	3340.0	7490.0	3730.0	Replicate of 21D17 - Composite
		CCB	814353	30.3	33.6	29.5	41.5	Cross-Contamination Blank for Site 21
		BB	814356	5.3	2.2	8.3	18.9	Bottle Blank for Site 21
21C18	Initial	N	814362	220000.0	170000.0	739000.0	584000.0	
	Composite	N	814365	28800.0	56800.0	88900.0	70400.0	
21T13	Initial	N						No runoff obtained at this plot
	Composite	N						No runoff obtained at this plot
33A07	Initial	N	814368	1310.0	11700.0 JE	2000.0	1660.0	
	Composite	N	814371	595.0	6670.0 JE	324.0	407.0	
33D08	Initial							No runoff obtained at this plot
	Composite							No runoff obtained at this plot
33I10	Initial	N	814374	3440.0	54200.0 JE	1460.0	2280.0	
	Composite	N	814377	1040.0	14900.0 JE	436.0	628.0	
33T09	Initial							No runoff obtained at this plot
	Composite							No runoff obtained at this plot
33C12	Initial	N	814380	60000.0	290000.0 JE	39300.0	46200.0	
	Composite	N	814383	14300.0	64100.0 JE	9590.0	11400.0	
		R	814386	14400.0	82400.0 JE	9260.0	11300.0	Replicate of 33C12 - Composite
		BB	814389	14.5	6.9 JE	7.5	18.9	Bottle Blank for Site 33
		CCB	814392	10.7	27.1 JE	7.0	18.0	Cross-Contamination Blank for Site 33

Dissolved metal levels (ug/L) in runoff waters from simulated rainfall tests. 1992 data. STARS Phase III, Silver Bow Creek RI/FS.

Station Location	Runoff	Sample Type	Sample Number	As	Ca	Cu	Fe	Mg	Mn	K	Na	Zn	Comments
07C17	Initial	N	814399	16.0	296.0	29.7	194.0	244.0 JB	5.4	417 U	3250 JB	11.6	
	Composite	N	880782	11.5	329.0 JB	14.4	124.0	167.0 JB	4.1	417 U	2490	6.7	
07I18	Initial	N	880785	52.8	2210.0	24.6	71.2 JB	4600.0	4.8	1290	1500 JB	4.5	
	Composite	N	880788	28.2	2580.0	12.9	48.0 JB	2170.0	2.7	417	1010 JB	3.6	
07D14		BB	880791	1.0 U	72.6	3.0 U	12.0	66.0 U	1.1	475	222	2.2	Bottle Blank for Site 7
	Initial	N											Insufficient runoff for lab samples
	Composite	N											Insufficient runoff for lab samples
		BFS	880793	44.0	25500.0	104.0	386.0	144.0 JB	154.0	417 U	363 JB	4.9	Blind Field Standard-ERA Standards
07A16		CCB	880797	1.0 U	160.0	3.0 U	12.9	142.0	1.3	417 U	829	2.7	Cross-Contamination Blank for Site 7
	Initial	N											No runoff obtained at this plot
	Composite	N											No runoff obtained at this plot
21A15	Initial	N	880982	36.1	107000.0	261.0	77.2 JB	63300.0	10600.0	2520	22100	1390.0	
	Composite	N	880984	40.4	81100.0	118.0	55.7 JB	17100.0	3810.0	417 U	6720 JB	327.0	
21I14	Initial	N	880987	116.0	116000.0	195.0	68.5 JB	205000.0	2510.0	8990	60700	121.0	
	Composite	N	880990	91.6	76800.0	44.0 JB	29.9 JB	25100.0	360.0	1910	8740	22.1 JB	
21D17	Initial	N	880993	48.7	73100.0	613.0	32.3 JB	18200.0	14200.0	5800	6320	5700.0	
	Composite	N	880996	47.3	48300.0	387.0	17.7 JB	7390.0	6930.0	2670	2610	2710.0	
		R	880999	48.3	50200.0	431.0	28.4 JB	7800.0	7160.0	2540	2560	2910.0	Replicate of 21D17 - Composite
		CCB	814354	2.9	311.0	19.2	2.4	241.0	20.7	417 U	1350	20.9	Cross-Contamination Blank for Site 21
		BB	814357	1.0 U	46.8	3.0 U	2.0 U	98.0	2.6	417 U	142	8.3	Bottle Blank for Site 21
		BFS	814359	53.2	25300.0	104.0	371.0	91.6	151.0	417 U	243 JB	73.4 JB	Blind Field Standard-ERA Standards
21C18	Initial	N	814363	140.0	181000.0	196000.0	317.0	199000.0	709000.0	11500	156000	563000.0	
	Composite	N	814366	51.2	116000.0	24500.0	212.0	26500.0	86400.0	1440	26400	66400.0	
21T13	Initial	N											No runoff obtained at this plot
	Composite	N											No runoff obtained at this plot
33A07	Initial	N	814369	15.6	42500.0	448.0	107.0 JEB	5570.0	1450.0	9610	11500	548.0	
	Composite	N	814372	9.8	24000.0	92.7	102.0 JEB	2060.0	100.0	2770	5460 JB	33.1	
33D08	Initial	N											No runoff obtained at this plot
	Composite	N											No runoff obtained at this plot
33I10	Initial	N	814375	15.3	61500.0	87.4	133.0 JEB	6900.0	49.8	3060	4640 JB	21.1 JB	
	Composite	N	814379	10.7	19900.0	33.0 JB	87.6 JEB	1730.0	12.6 JB	610	2250 JB	11.4 JB	
33T09	Initial	N											No runoff obtained at this plot
	Composite	N											No runoff obtained at this plot
33C12	Initial	N	814381	34.4	36500.0	30000.0	4010.0 JE	23700.0	30900.0	4280	22000	35000.0	
	Composite	N	814384	3.6	18700.0	8080.0	282.0 JE	6090.0	8060.0	1080	6400	9320.0	
		R	814387	4.2	17800.0	7700.0	345.0 JE	5680.0	7650.0	857	6630	8840.0	Field Replicate of 33C12 - Composite
		BB	814390	1.0 U	108.0	4.4	3.8 JE	79.4	5.3	417 U	282	15.8	Bottle Blank for Site 33
		CCB	814393	1.5	149.0	12.4	60.6 JE	109.0	2.7	417 U	1300	6.6	Cross-Contamination Blank for Site 33
		BFS	814395	11.0	25600.0	105.0	375.0 JE	138.0	151.0	417 U	421 JB	12.8 JB	Blind Field Standard-ERA Standards

APPENDIX B5

SURFACE SOIL XRF METALS

Elemental levels (mg/kg) in surface soils collected in May 1992 from the STARS field plots. Silver Bow Creek RI/FS.

Station Location	Sample ID	Sample Type	Cu	Zn	As	Cd	Pb	Comments
07I18	SS-100	N	349.0	471.0	208.0	4.0 U	268.0	
07C17	SS-101	N	294.0	337.0	186.0	4.0 U	220.0	
07A16	SS-102	N	383.0	439.0	140.0	5.1	208.0	
07D14	SS-103	N	942.0	1200.0	169.0	4.0 U	526.0	
07T13	SS-104	N	59.1	164.0	17.9	4.0 U	51.2	
07T13	SS-105	BFS	3020.0	7020.0	568.0	22.5	5750.0	Blind Field Standard #1
07T19	SS-106	N	38.7	100.0	9.3	4.0 U	32.7	
07A16	SS-107	R	308.0	404.0	109.0	4.6	190.0	Field Replicate
07NAR3	SS-108	N	313.0	507.0	196.0	4.0 U	243.0	"No Action", Replication 3, outside plot
07D20	SS-109	N	816.0	1840.0	351.0	4.0 U	857.0	
		LD	837.0	1880.0	350.0	4.7	860.0	Laboratory Duplicate
07C21	SS-110	N	435.0	528.0	354.0	4.6	360.0	
07C21	SS-111	CCB	14.1 U	20.2 U	5.8 U	4.0 U	8.4 U	Cross Contamination Blank
07C21	SS-112	FB	14.1 U	20.2 U	5.8 U	4.0 U	8.4 U	Field Blank
07C21	SS-113	BFS	120.0	340.0	81.7	37.5	1160.0	Blind Field Standard #2
		LCS	3370.0	3650.0	831.0	25.7	513.0	Laboratory Control Standard
07I22	SS-114	N	413.0	421.0	225.0	4.0 U	264.0	
07A23	SS-115	N	424.0	389.0	248.0	4.0 U	224.0	
07NAR4	SS-116	N	304.0	327.0	300.0	4.0 U	168.0	"No Action", Replication 4, outside plot
07A01	SS-117	N	1460.0	2020.0	267.0	10.9	619.0	
07C02	SS-118	N	645.0	2060.0	320.0	4.0 U	348.0	
07D03	SS-119	N	432.0	1320.0	316.0	4.8	410.0	
07NAR1	SS-120	N	815.0	3230.0	422.0	10.9	488.0	No Action, Replication 1, outside plot
07NAR1	SS-121	R	768.0	3130.0	391.0	13.3	536.0	No Action" Field Replicate
07I05	SS-122	N	792.0	2310.0	333.0	4.7	450.0	
07NAR2	SS-123	N	617.0	2140.0	283.0	5.7	326.0	
07T06	SS-124	N	47.4	147.0	21.8	4.0 U	48.2	
07I08	SS-125	N	477.0	2240.0	419.0	7.4	391.0	
07D09	SS-126	N	1020.0	1690.0	360.0	4.0 U	446.0	
07A10	SS-127	N	1660.0	3100.0	465.0	9.0	1390.0	
07C11	SS-128	N	577.0	1660.0	312.0	5.1	407.0	
		LCS	3400.0	3680.0	847.0	29.4	490.0	Laboratory Control Standard
07T12	SS-129	N	58.2	130.0	9.7	4.0 U	61.2	
		LD	50.2	135.0	6.1	4.0 U	68.1	Laboratory Duplicate

Elemental levels (mg/kg) in surface soils collected in May 1992 from the STARS field plots. Silver Bow Creek RI/FS.

Station Location	Sample ID	Sample Type	Cu	Zn	As	Cd	Pb	Comments
21T01	SS-130	N	314.0	782.0	45.5	4.0 U	117.0	
21D02	SS-131	N	3540.0	6110.0	1080.0	17.3	3250.0	
21NAR1	SS-132	N	3940.0	8940.0	1060.0	35.7	1490.0	"No Action", Replication 1, outside plot
21NAR1	SS-133	R	3850.0	8580.0	1010.0	32.3	1410.0	"No Action" Field Replicate
21I04	SS-134	N	2970.0	5640.0	1130.0	21.5	1600.0	
21A05	SS-135	N	5320.0	8130.0	1810.0	26.3	2030.0	
21A05	SS-136	BFS	3040.0	6950.0	539.0	30.5	5800.0	Blind Field Standard #1
21C06	SS-137	N	4460.0	7480.0	1590.0	26.0	2030.0	
21C06	SS-138	FB	14.1 U	20.2 U	5.8 U	4.0 U	8.4 U	Field Blank
21D07	SS-139	N	3290.0	5410.0	1510.0	18.0	2620.0	
		XCS	14.1 U	20.2 U	5.8 U	4.0 U	8.4 U	Laboratory Cross Contamination Check Sample
		LB	14.1 U	20.2 U	5.8 U	4.0 U	8.4 U	Laboratory Sand Blank
		LCS	3370.0	3640.0	834.0	18.6	493.0	Laboratory Control Standard
21NAR2	SS-140	N	6510.0	11500.0	1280.0	43.7	2420.0	"No Action", Replication 2, outside plot
21NAR2	SS-141	CCB	16.6	20.2 U	5.8 U	4.0 U	8.4 U	"No Action" Cross Contamination Blank
21A09	SS-142	N	7730.0	8920.0	1760.0	31.2	2090.0	
21C10	SS-143	N	5710.0	6410.0	1740.0	28.3	2390.0	
21I11	SS-144	N	2800.0	4760.0	1370.0	15.8	1460.0	
21T12	SS-145	N	267.0	530.0	105.0	4.0 U	148.0	
21T13	SS-146	N	401.0	737.0	64.8	4.0 U	112.0	
21T13	SS-147	BFS	102.0	357.0	69.1	44.5	1180.0	Blind Field Standard #2
21T13	SS-148	R	357.0	589.0	65.1	4.0 U	101.0	Field Replicate
21I14	SS-149	N	3500.0	6240.0	1180.0	23.4	1390.0	
		LD	3480.0	6210.0	1200.0	22.7	1420.0	Laboratory Duplicate
21A15	SS-150	N	4900.0	9030.0	1930.0	30.4	2030.0	
21NAR3	SS-151	N	5970.0	7640.0	1330.0	31.2	1660.0	"No Action", Replication 3, outside plot
21D17	SS-152	N	4720.0	7100.0	1710.0	21.1	3870.0	
21C18	SS-153	N	4090.0	8540.0	1580.0	25.5	2010.0	
		LCS	3400.0	3700.0	839.0	24.0	515.0	Laboratory Control Standard
21T19	SS-154	N	917.0	1680.0	342.0	4.0 U	413.0	
21C20	SS-155	N	4000.0	6670.0	1760.0	19.4	1890.0	
21D21	SS-156	N	6140.0	8330.0	1970.0	29.2	4460.0	
21NAR4	SS-157	N	3890.0	6680.0	1190.0	29.0	1510.0	"No Action", Replication 4, outside plot
21A23	SS-158	N	2180.0	6190.0	2200.0	17.9	1790.0	
21I24	SS-159	N	1840.0	5160.0	1490.0	11.5	1520.0	

Elemental levels (mg/kg) in surface soils collected in May 1992 from the STARS field plots. Silver Bow Creek RI/FS.

Station Location	Sample ID	Sample Type	Cu	Zn	As	Cd	Pb	Comments
27NAR4	SS-160	N	3290.0	11600.0	455.0	27.7	6710.0	"No Action, Replication 4, outside plot
27D22	SS-162	N	234.0	384.0	74.2	5.3	196.0	
27D22	SS-163	R	273.0	428.0	85.8	4.0 U	219.0	Field Replicate
27C21	SS-164	N	4620.0	10900.0	522.0	30.2	6680.0	
27X20	SS-165	N	4030.0	6110.0	832.0	18.5	4520.0	
27A19	SS-166	N	2080.0	2580.0	450.0	9.2	2030.0	
27A19	SS-167	CCB	14.1 U	20.2 U	5.8 U	4.0 U	8.4 U	Cross Contamination Blank
27A17	SS-168	N	2190.0	4660.0	431.0	21.3	3430.0	
27D16	SS-169	N	539.0	1100.0	115.0	6.8	621.0	
		LCS	3410.0	3690.0	845.0	24.2	493.0	Laboratory Control Standard
27D16	SS-170	FB	14.1 U	20.2 U	5.8 U	4.0 U	8.4 U	Field Blank
		LD	14.1 U	20.2 U	5.8 U	4.0 U	8.4 U	Laboratory Duplicate
27NAR3	SS-171	N	4670.0	14600.0	839.0	33.3	9640.0	"No Action", Replication 3, outside plot
27C14	SS-172	N	2150.0	4490.0	547.0	13.1	3230.0	
27C14	SS-173	BFS	3010.0	6940.0	530.0	27.4	5760.0	Blind Field Standard
27X13	SS-174	N	1700.0	1760.0	404.0	11.3	1720.0	
27D11	SS-175	N	1430.0	2110.0	225.0	7.3	1500.0	
27D11	SS-176	BFS	113.0	344.0	74.5	36.6	1170.0	Blind Field Standard
27C10	SS-177	N	3100.0	4670.0	616.0	22.1	2590.0	
27X09	SS-178	N	1970.0	2430.0	327.0	13.0	1780.0	
27NAR2	SS-179	N	3420.0	7520.0	511.0	23.9	5340.0	"No Action", Replication 2, outside plot
27NAR2	SS-180	R	3620.0	8480.0	480.0	22.2	6220.0	"No Action" Field Replicate
		XCS	18.1	20.2 U	5.8 U	4.0 U	8.4 U	Laboratory Cross Contamination Check Sample
		LB	14.1 U	20.2 U	5.8 U	4.0 U	8.4 U	Laboratory Sand Blank
		LCS	3380.0	3650.0	835.0	32.1	491.0	Laboratory Control Standard
27A07	SS-181	N	700.0	899.0	237.0	8.9	652.0	
27D05	SS-182	N	214.0	333.0	72.3	4.4	168.0	
27A04	SS-183	N	895.0	1270.0	272.0	9.1	764.0	
27NAR1	SS-184	N	4060.0	4290.0	885.0	14.3	3300.0	"No Action", Replication 1, outside plot
27C02	SS-185	N	2450.0	5070.0	732.0	11.2	3810.0	
27X01	SS-186	N	474.0	572.0	233.0	4.7	310.0	

Elemental levels (mg/kg) in surface soils collected in May 1992 from the STARS field plots. Silver Bow Creek RI/FS.

Station Location	Sample ID	Sample Type	Cu	Zn	As	Cd	Pb	Comments
33I01	SS-187	N	748.0	1280.0	237.0	4.3	504.0	
33D02	SS-188	N	889.0	1430.0	230.0	4.0 U	475.0	
33NAR1	SS-189	N	2480.0	3150.0	292.0	15.3	476.0	"No Action", Replication 1, outside plot
33C04	SS-190	N	1080.0	1370.0	215.0	4.0 U	471.0	
	SS-190	LD	1090.0	1400.0	225.0	4.0 U	456.0	Laboratory Duplicate
33C04	SS-191	R	1210.0	1480.0	233.0	4.0 U	453.0	Field Replicate
33A05	SS-192	N	1540.0	3070.0	340.0	12.2	807.0	
33T06	SS-193	N	650.0	1210.0	140.0	8.7	321.0	
33T06	SS-194	BFS	3020.0	7020.0	572.0	25.9	5780.0	Blind Field Standard #1
		LCS	3410.0	3730.0	848.0	27.0	504.0	Laboratory Control Standard
33A07	SS-195	N	1650.0	2400.0	322.0	9.6	658.0	
33A07	SS-196	FB	14.1 U	20.2 U	5.8 U	4.0 U	8.4 U	Field Blank
33D08	SS-197	N	1200.0	2020.0	289.0	4.6	617.0	
33T09	SS-198	N	68.5	144.0	10.5	4.0 U	41.4	
33I10	SS-199	N	1180.0	2030.0	276.0	4.0 U	537.0	
33NAR2	SS-200	N	1270.0	1900.0	226.0	4.0 U	496.0	"No Action", Replication 2, outside plot
33NAR2	SS-201	R	1580.0	2260.0	238.0	10.6	533.0	"No Action" Field Replicate
33NAR2	SS-202	CCB	14.1 U	20.2 U	5.8 U	4.0 U	8.4 U	"No Action" Cross Contamination Blank
33I13	SS-203	N	746.0	1260.0	237.0	4.0 U	452.0	
33I13	SS-204	BFS	105.0	355.0	84.0	45.9	1190.0	Blind Field Standard
33T14	SS-205	N	208.0	359.0	46.2	5.3	74.7	
33NAR3	SS-206	N	682.0	1020.0	121.0	4.0 U	312.0	"No Action", Replication 3, outside plot
33C16	SS-207	N	2690.0	3330.0	335.0	9.6	665.0	
33D17	SS-208	N	2060.0	2720.0	365.0	12.2	825.0	
33A18	SS-209	N	1590.0	2080.0	306.0	5.8	568.0	
		LCS	3400.0	3710.0	854.0	28.2	507.0	Laboratory Control Standard
33T19	SS-210	N	77.3	128.0	16.1	4.0 U	39.5	
		LD	72.2	134.0	19.1	4.0 U	34.7	Laboratory Duplicate
33C20	SS-211	N	1930.0	2450.0	272.0	10.5	501.0	
33A21	SS-212	N	1450.0	2130.0	269.0	7.5	483.0	
33I22	SS-213	N	1360.0	1770.0	288.0	4.0 U	528.0	
33D23	SS-214	N	1370.0	2020.0	334.0	6.9	707.0	
33NAR4	SS-215	N	1420.0	1350.0	206.0	5.7	387.0	"No Action", Replication 4, outside plot
		XCS	14.1 U	20.2 U	5.8 U	4.0 U	8.4 U	Laboratory Cross Contamination Check Sample
		LB	14.1 U	20.2 U	5.8 U	4.0 U	8.4 U	Laboratory Sand Blank
		LCS	3370.0	3680.0	848.0	6.1	493.0	Laboratory Control Standard

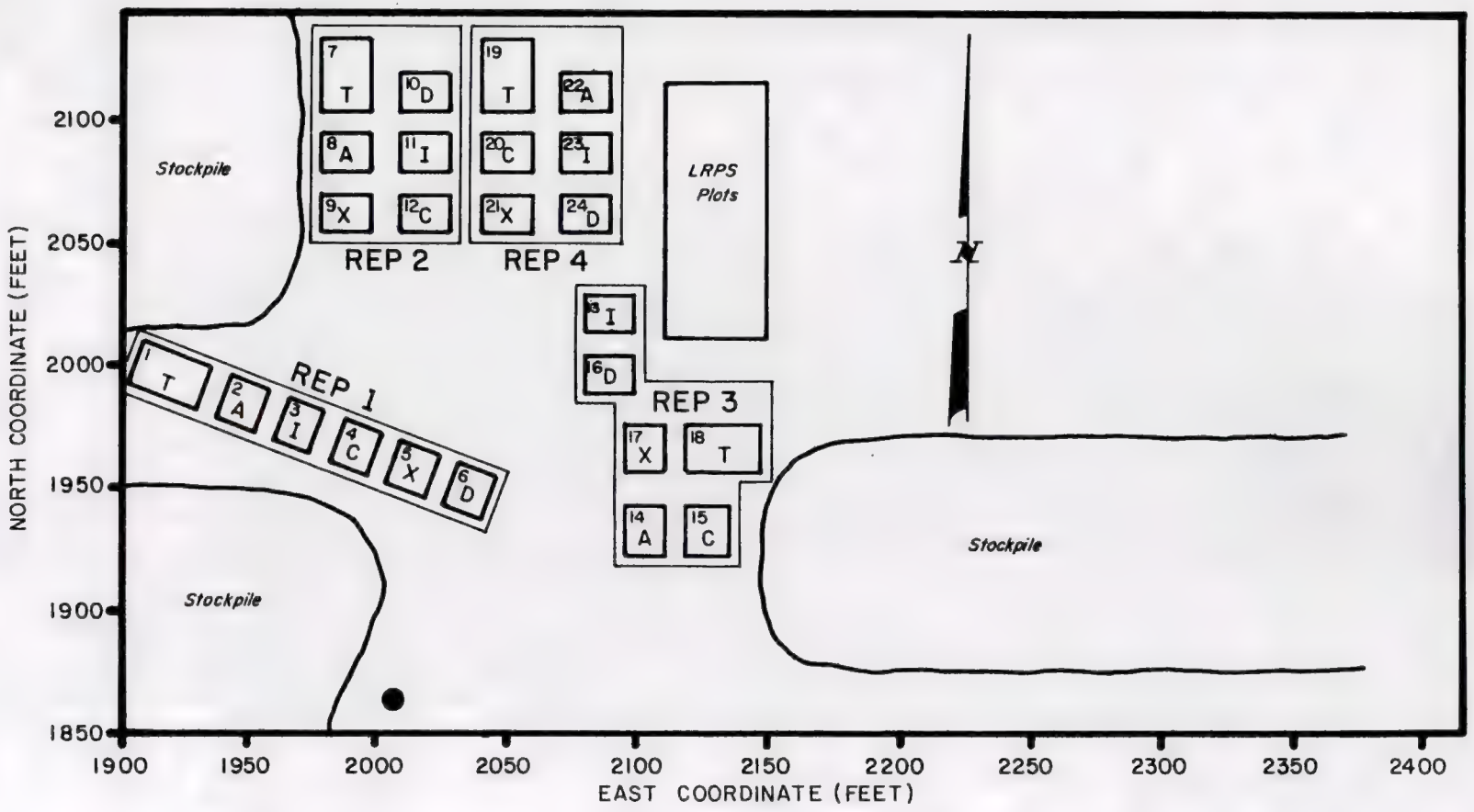
APPENDIX C

SITE RELATED

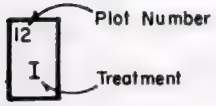
APPENDIX C1

SITE LAYOUT

SITE 2: (MANGANESE STOCKPILE): TYPE T - TAILINGS



LEGEND



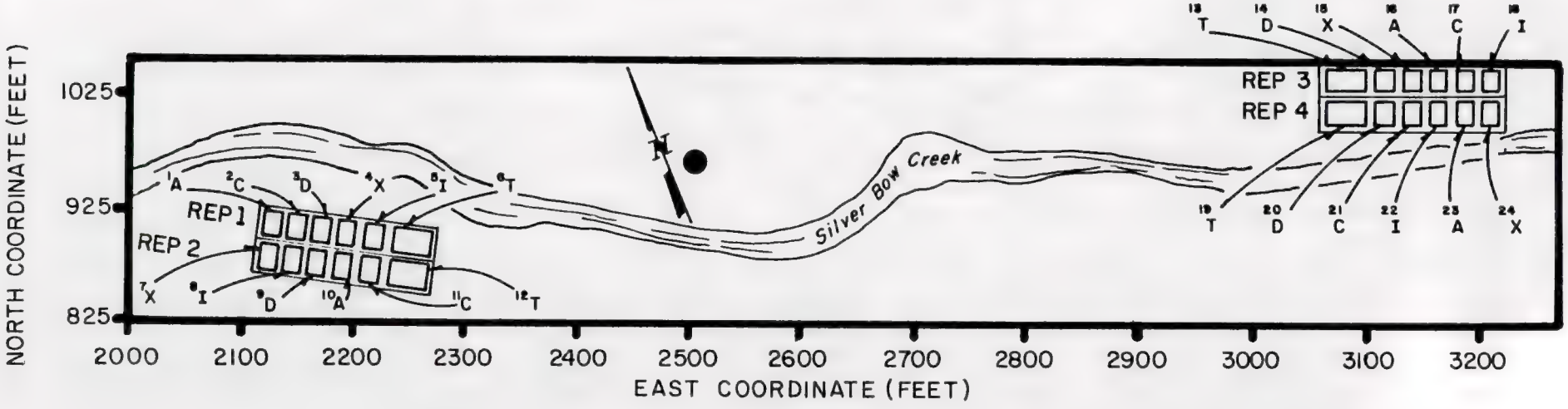
TREATMENT

T - Topsoil
A - Agricultural
D - Deep Plow
I - LSPI
C - Control
X - Extra

● - BULK SAMPLE SITE

ph = 3.80
EC = 6.70 mmho/cm
Zn = 22,000 mg/kg
As = 1,745 mg/kg

SITE 7: WASTE TYPE 2



LEGEND

12 — Plot Number

I — Treatment

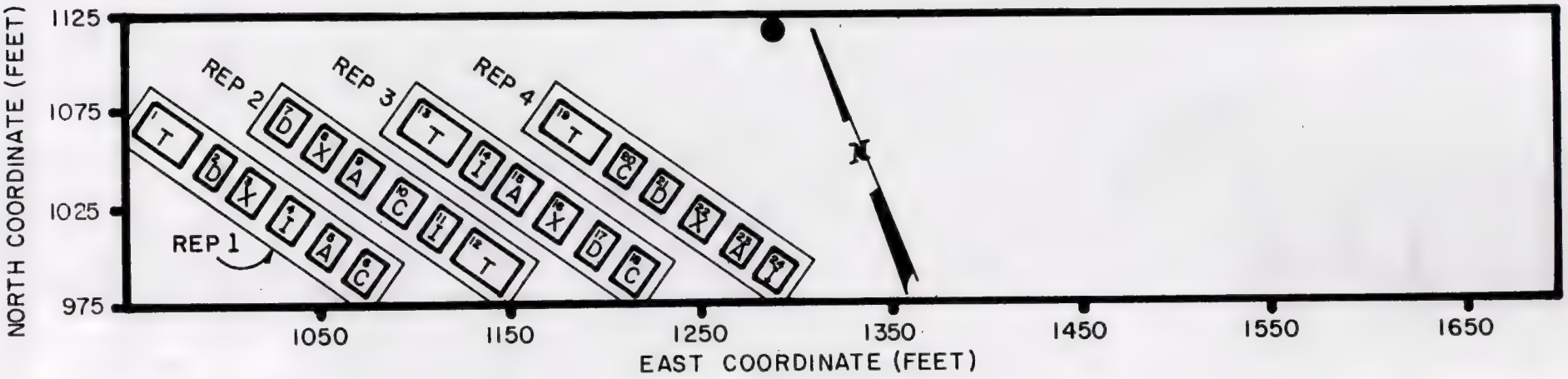
TREATMENT

T - Topsoil
A - Agricultural
D - Deep Plow
I - LSPI
C - Control
X - Extra

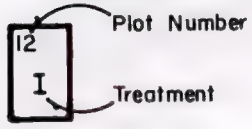
● - BULK SAMPLE SITE

ph = 3.30
EC = 2.90 mmho/cm
Zn = 3,840 mg/kg
As = 83.6 mg/kg

SITE 21: (RAMSAY FLATS): WASTE TYPE 3



LEGEND



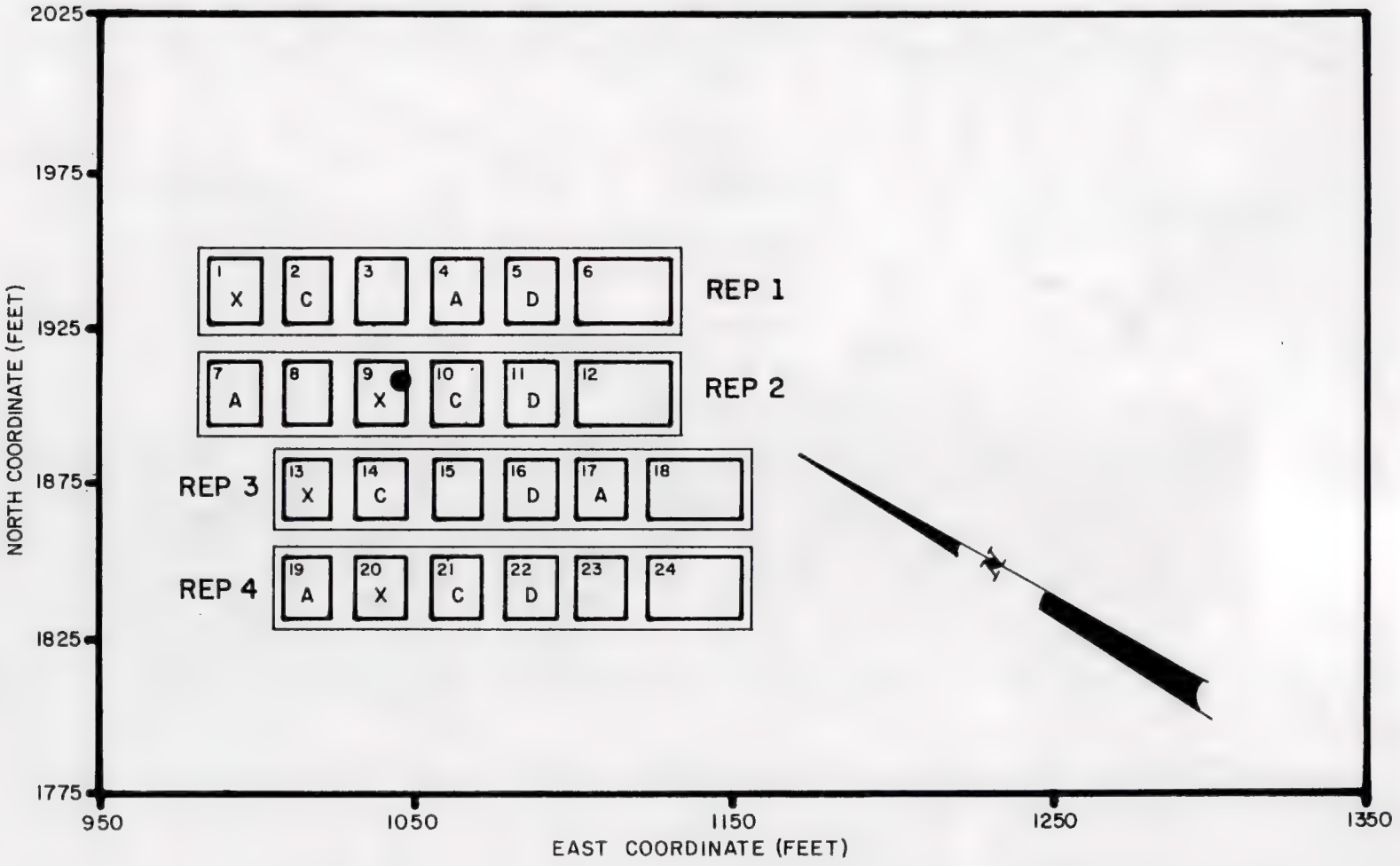
TREATMENT

T - Topsoil
A - Agricultural
D - Deep Plow
I - LSPI
C - Control
X - Extra

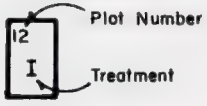
● - BULK SAMPLE SITE

ph = 3.70
EC = 7.50 mmho/cm
Zn = 7,430 mg/kg
As = 2,560 mg/kg

SITE 27: TYPE F - FLOOD-AFFECTED AGRICULTURAL SOIL



LEGEND



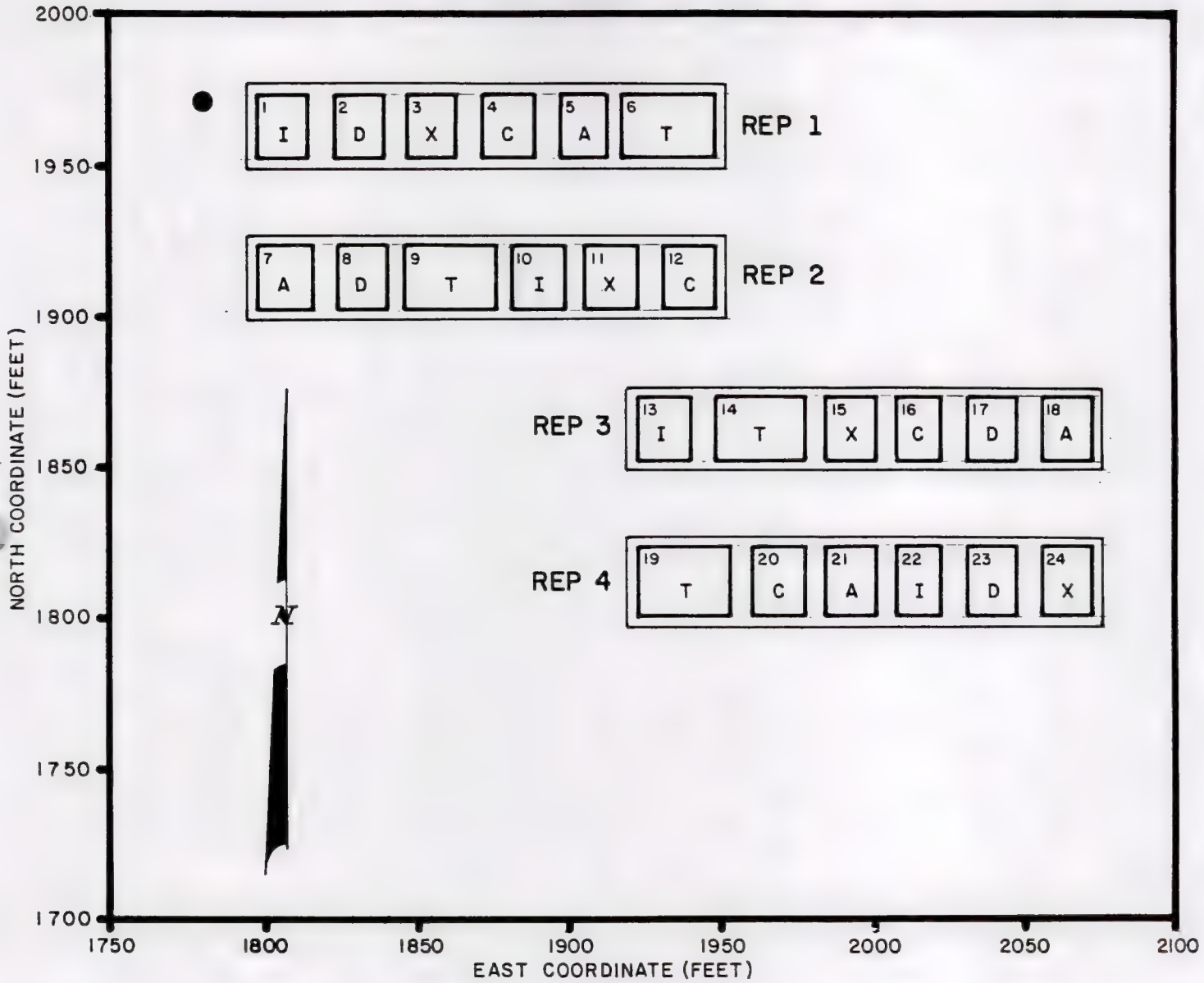
TREATMENT

T - Topsoil
A - Agricultural
D - Deep Plow
I - LSPI
C - Control
X - Extra

● - BULK SAMPLE SITE

ph = 4.40
EC = 3.00 mmho/cm
Zn = 1,920mg/kg
As = 235 mg/kg

SITE 33: TYPE 1 WASTE



LEGEND

12 I — Plot Number; Treatment

TREATMENT

T - Topsoil
A - Agricultural
D - Deep Plow
I - LSPI
C - Control
X - Extra

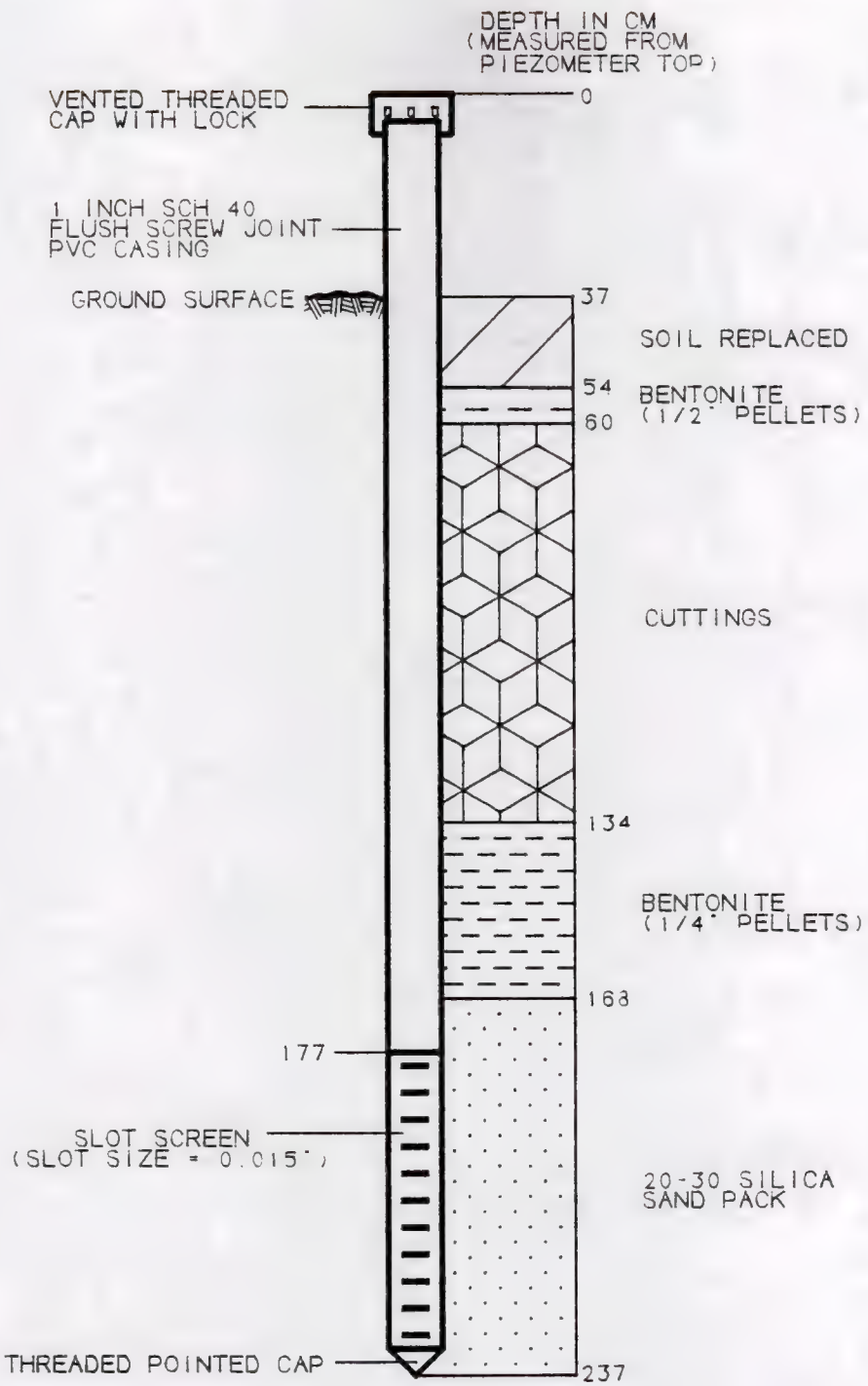
● - BULK SAMPLE SITE

ph = 3.40
EC = 3.80 mmho/cm
Zn = 1,110 mg/kg
As = 209 mg/kg

APPENDIX C2

COMPLETION DIAGRAMS

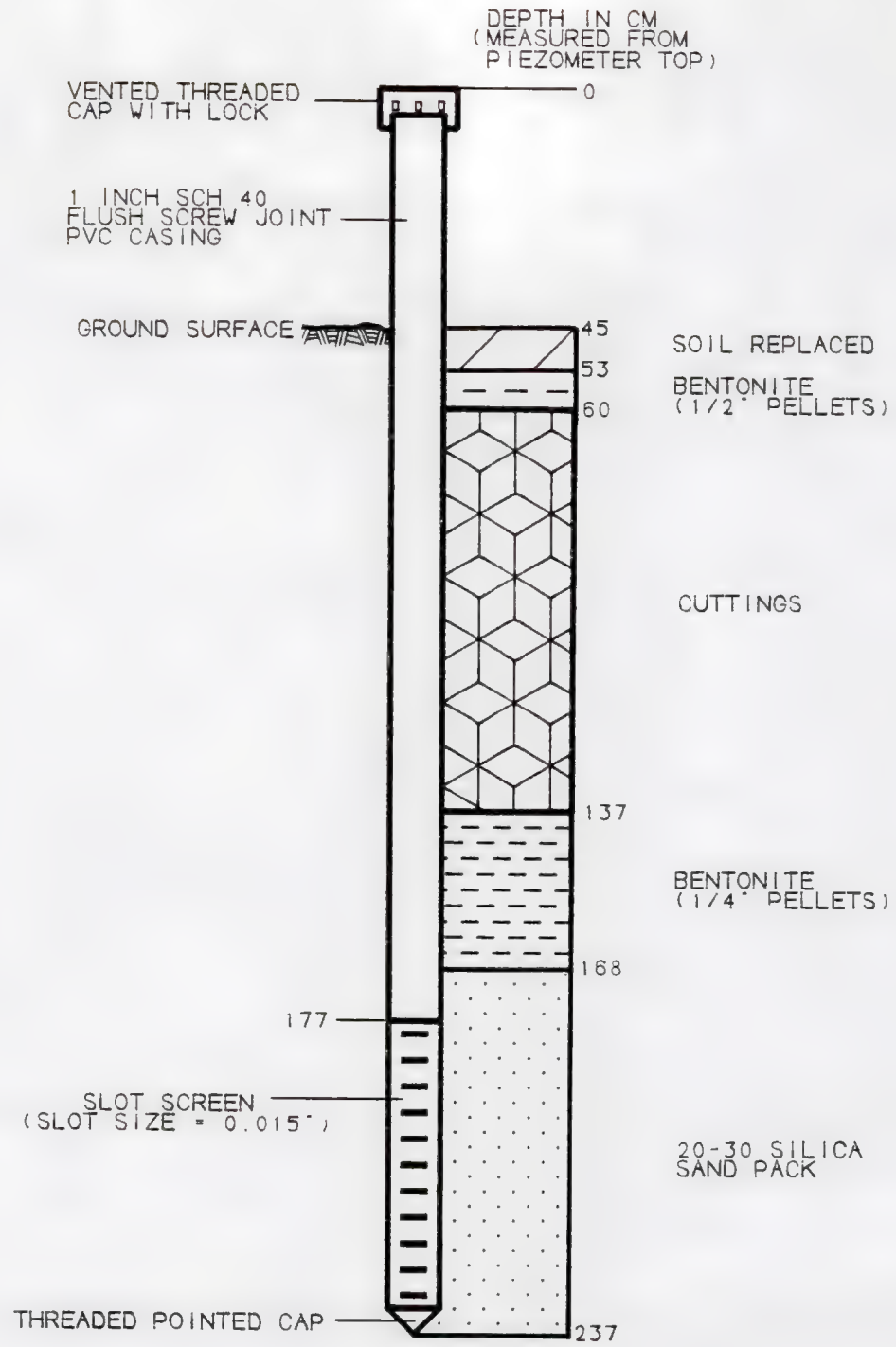
LYSIMETERS
PIEZOMETERS



Schafer

PIEZOMETER COMPLETION DIAGRAM

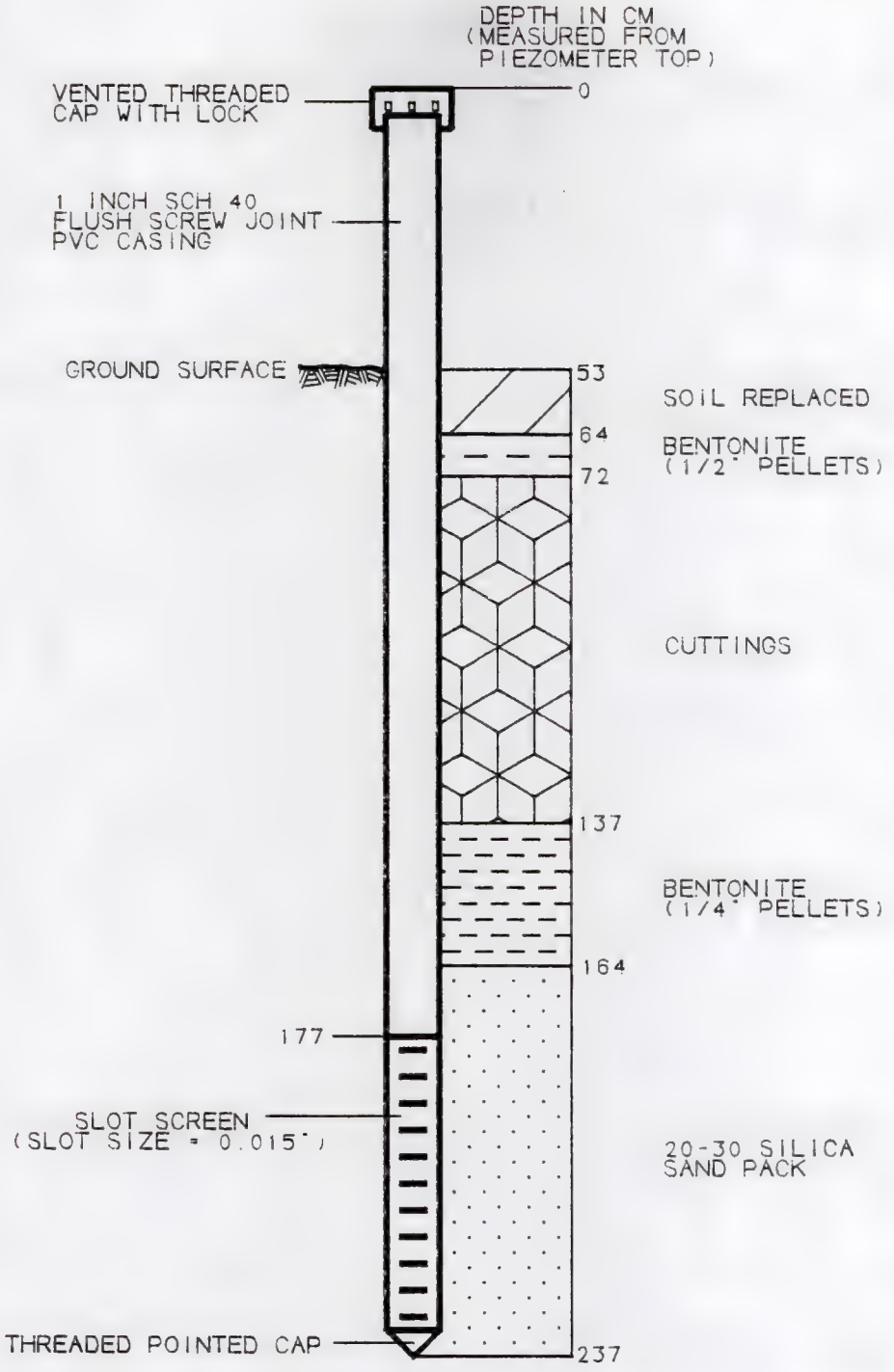
02T19 SITE 2



Schafer

PIEZOMETER COMPLETION DIAGRAM

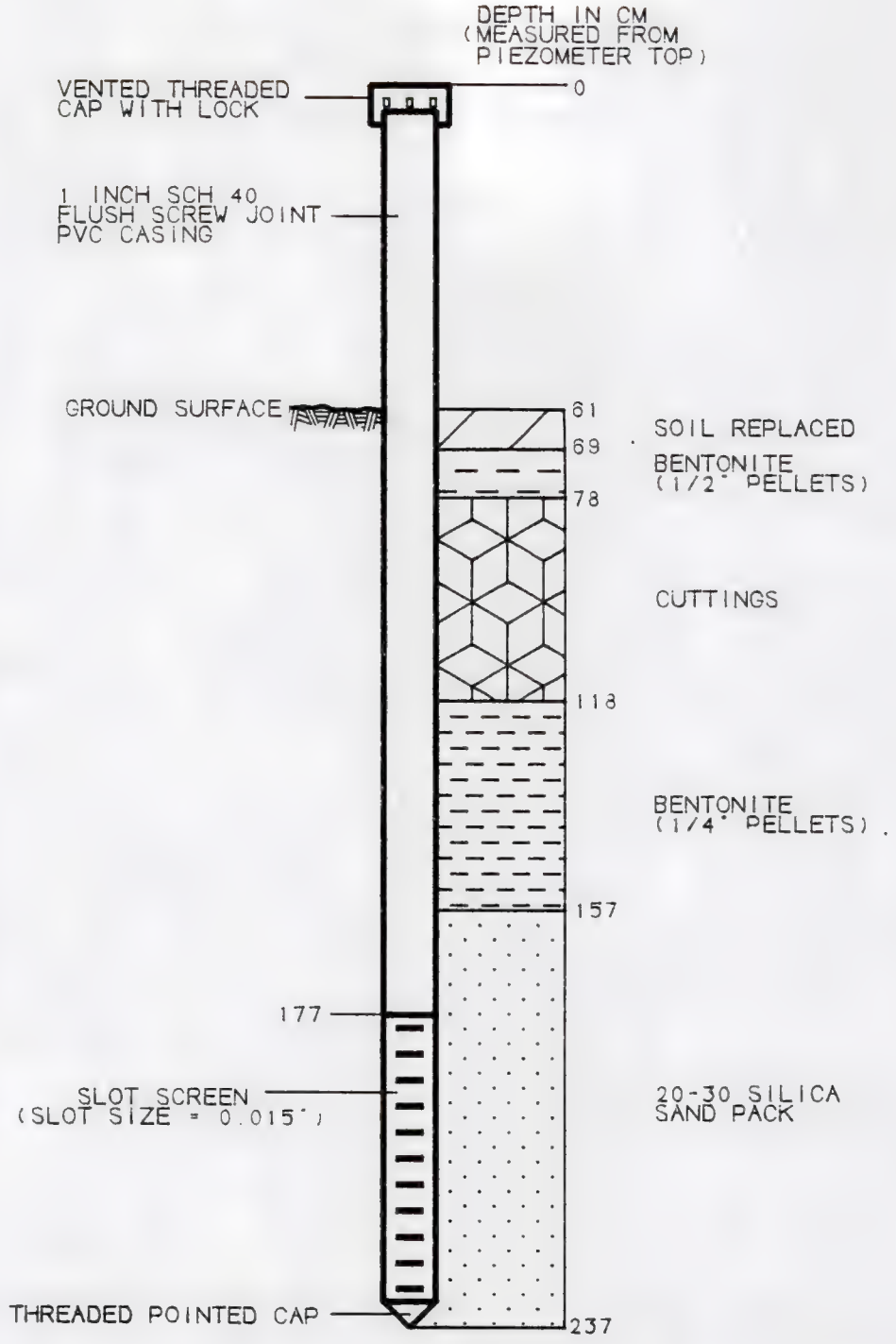
02C20 SITE 2



Schafer

PIEZOMETER COMPLETION DIAGRAM

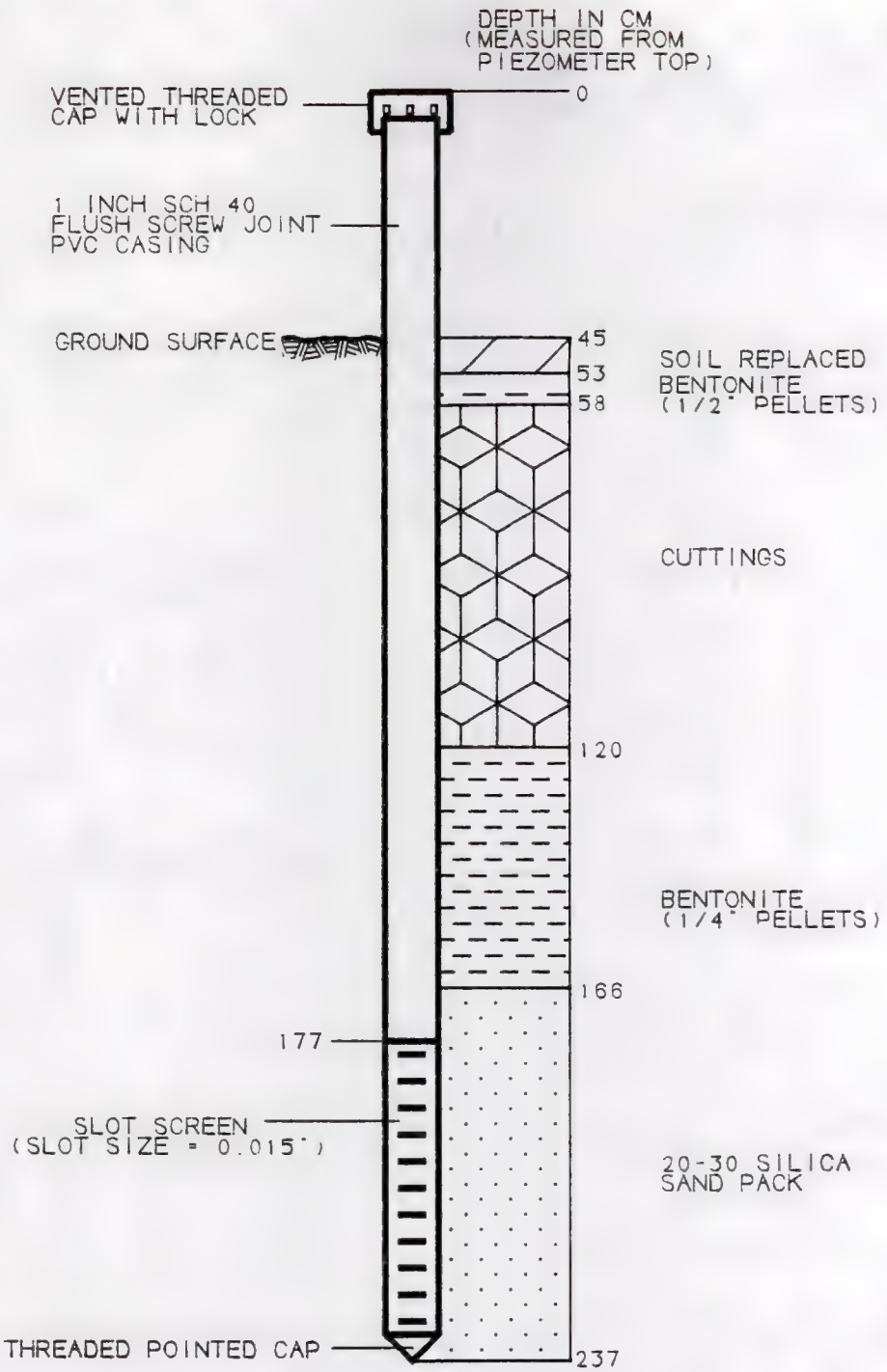
02X21 SITE 2



Schafer

PIEZOMETER COMPLETION DIAGRAM

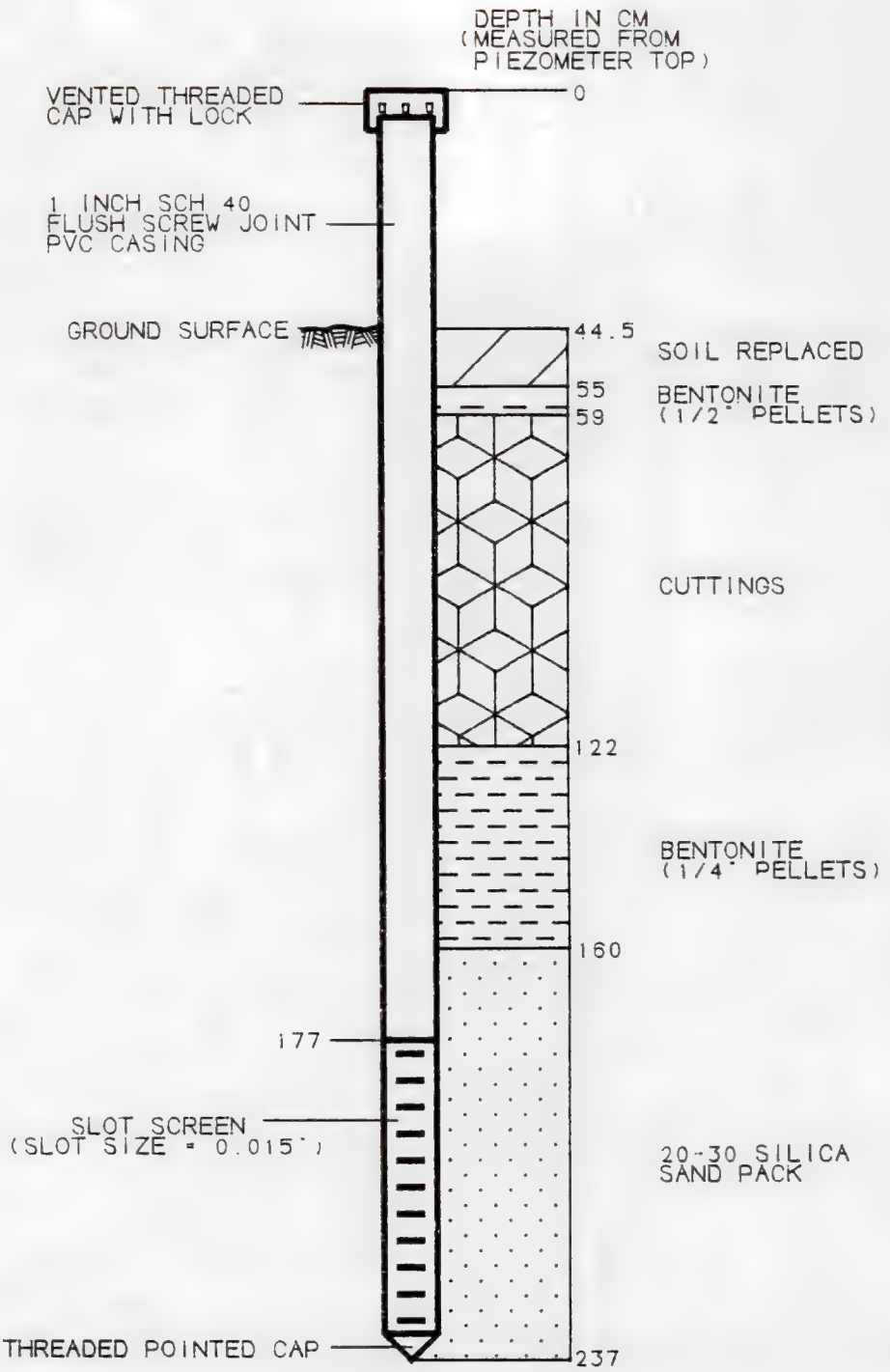
02A22 SITE 2



Schafer

PIEZOMETER COMPLETION DIAGRAM

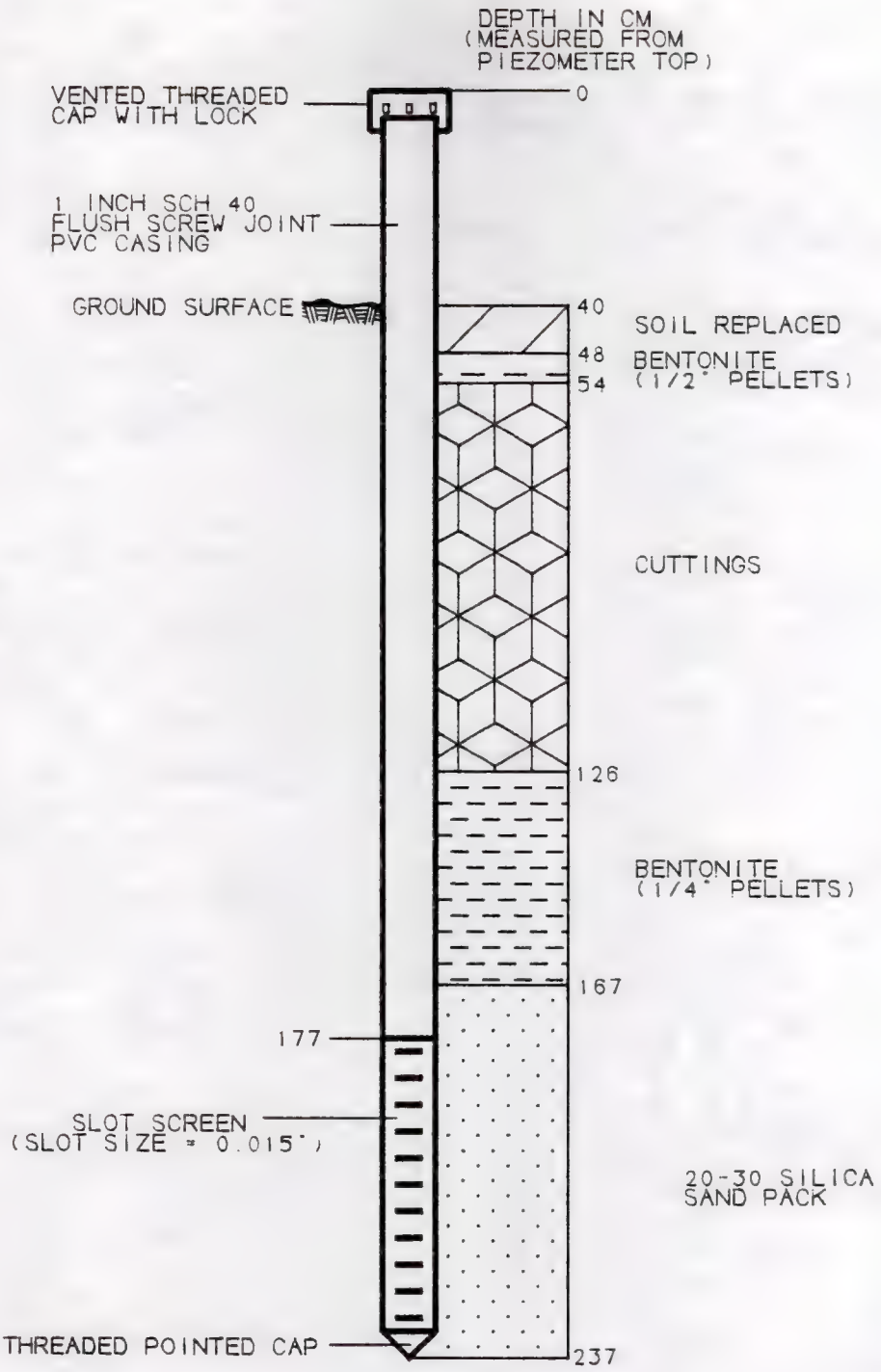
02123 SITE 2



Schafer

PIEZOMETER COMPLETION DIAGRAM

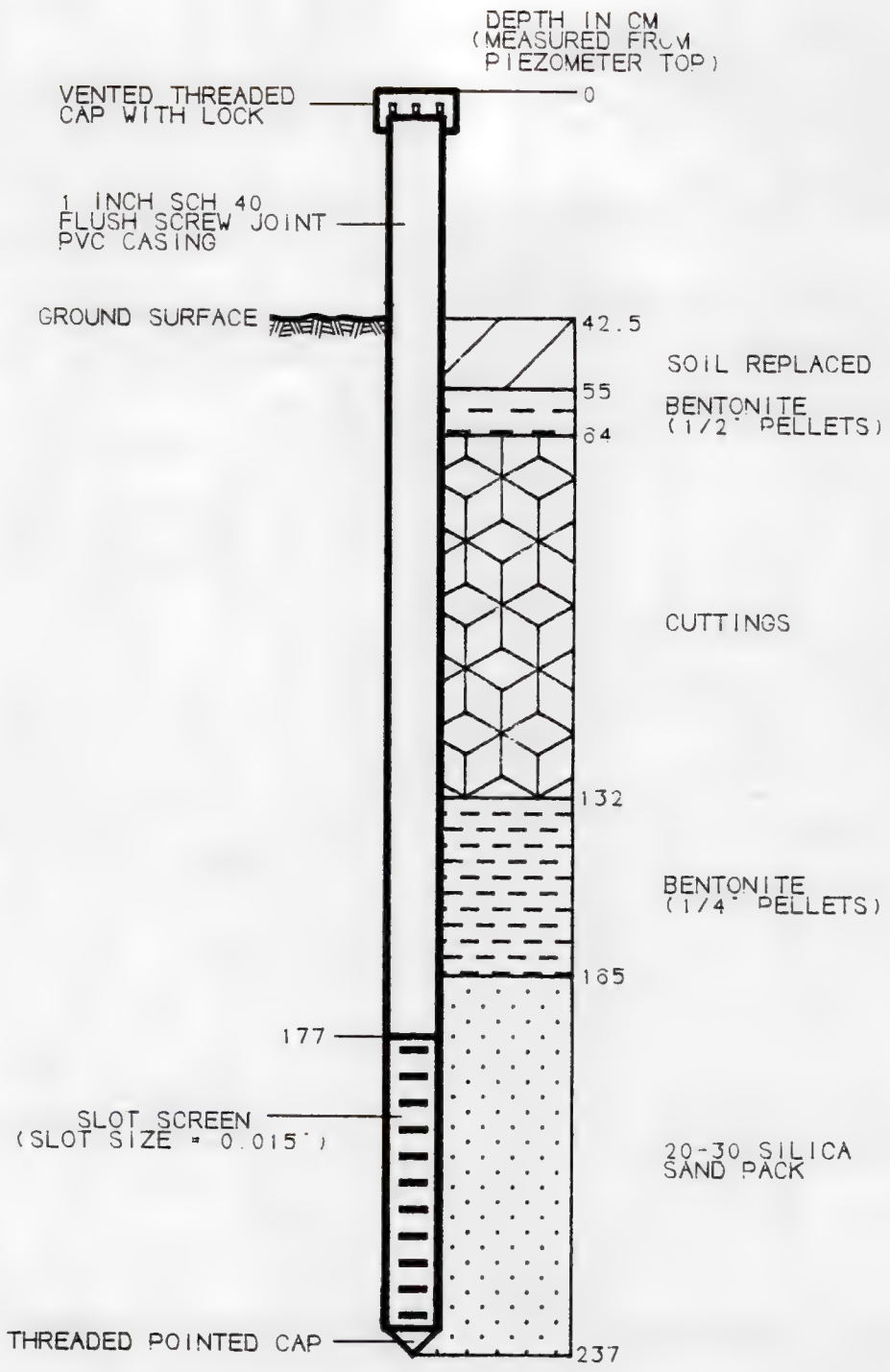
02024 SITE 2



Schafer

PIEZOMETER COMPLETION DIAGRAM

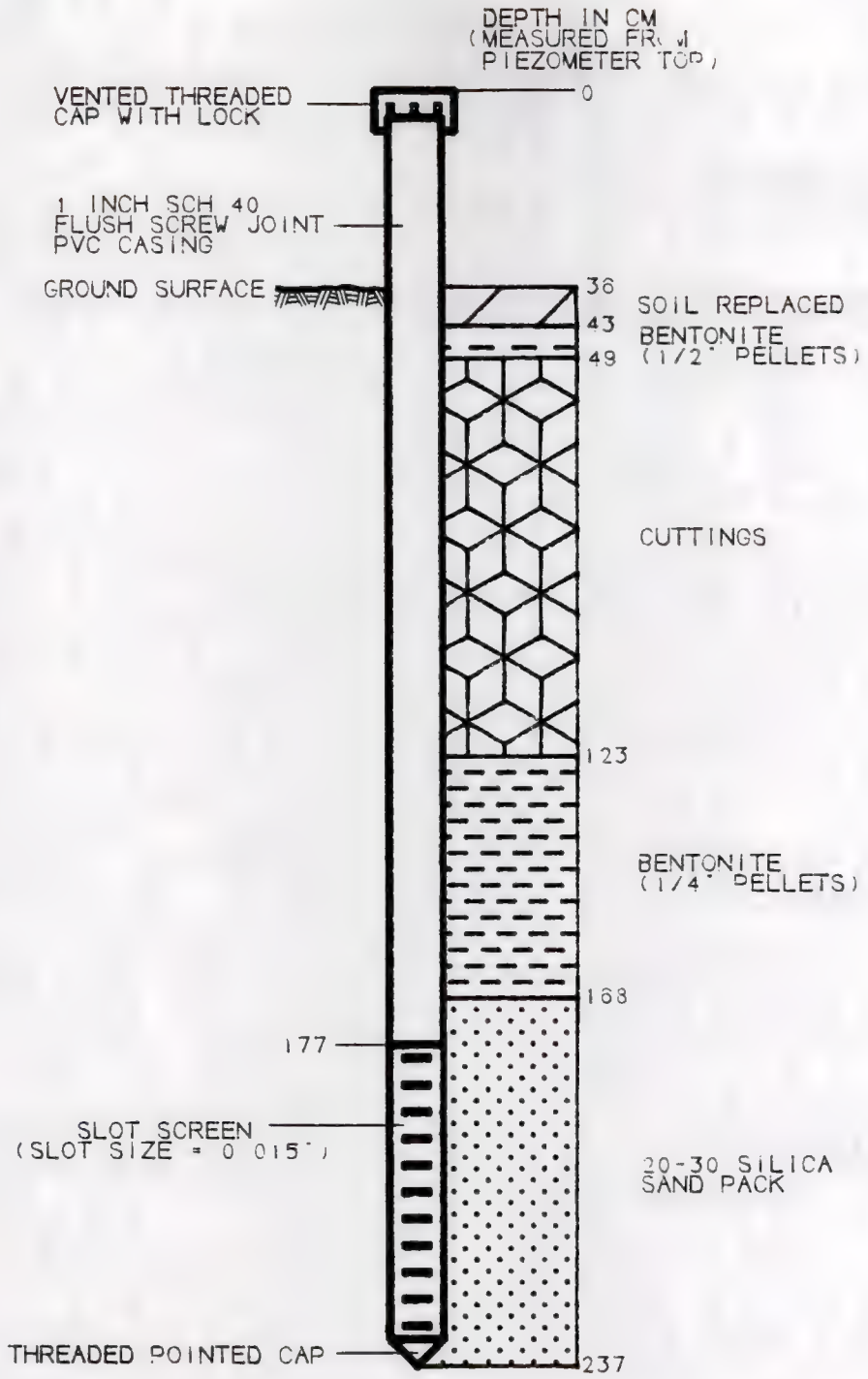
07T13 SITE 7



Schafer

PIEZOMETER COMPLETION DIAGRAM

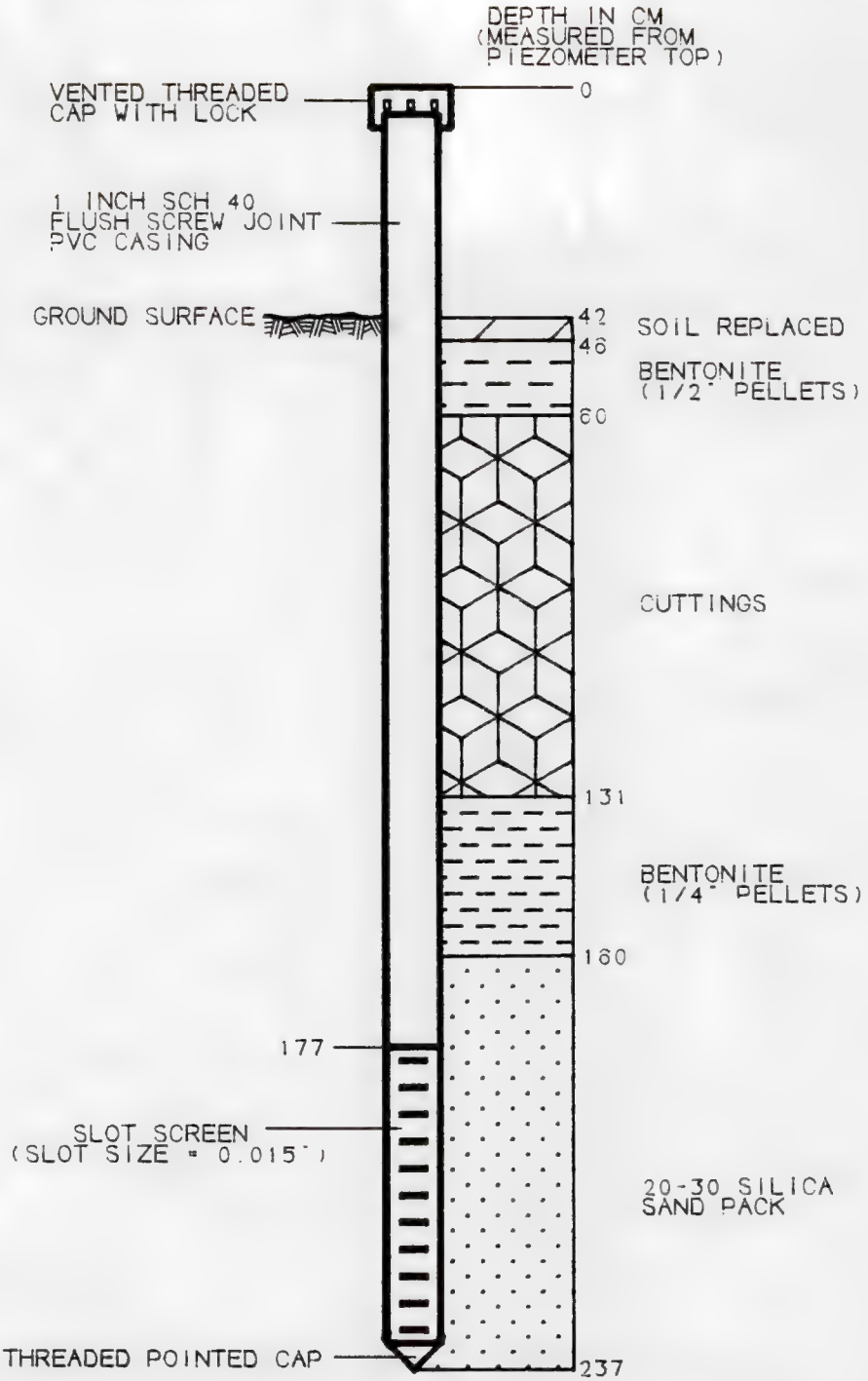
07D14 SITE 7



Schafer

PIEZOMETER COMPLETION DIAGRAM

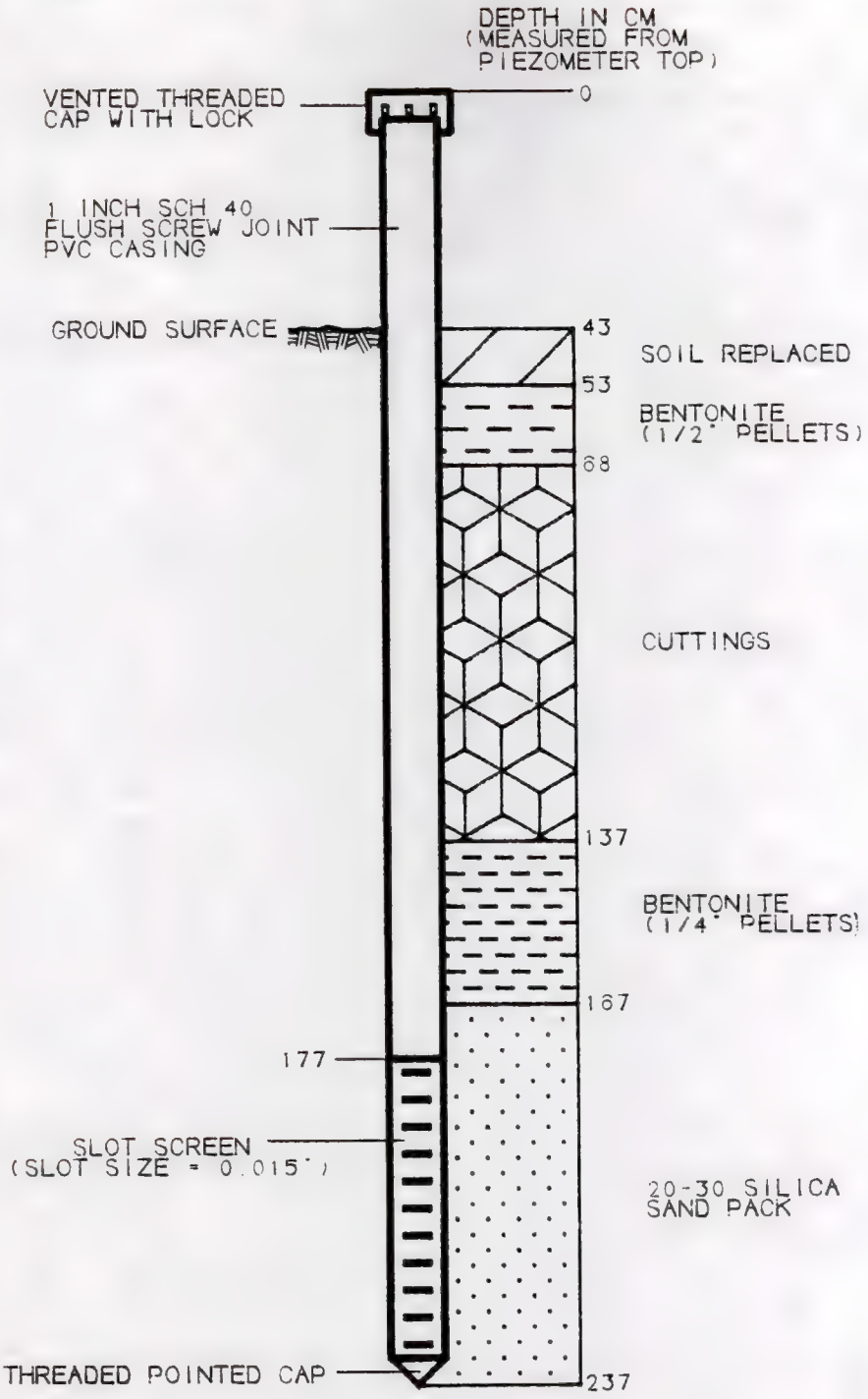
07A16 SITE 7



Schafer

PIEZOMETER COMPLETION DIAGRAM

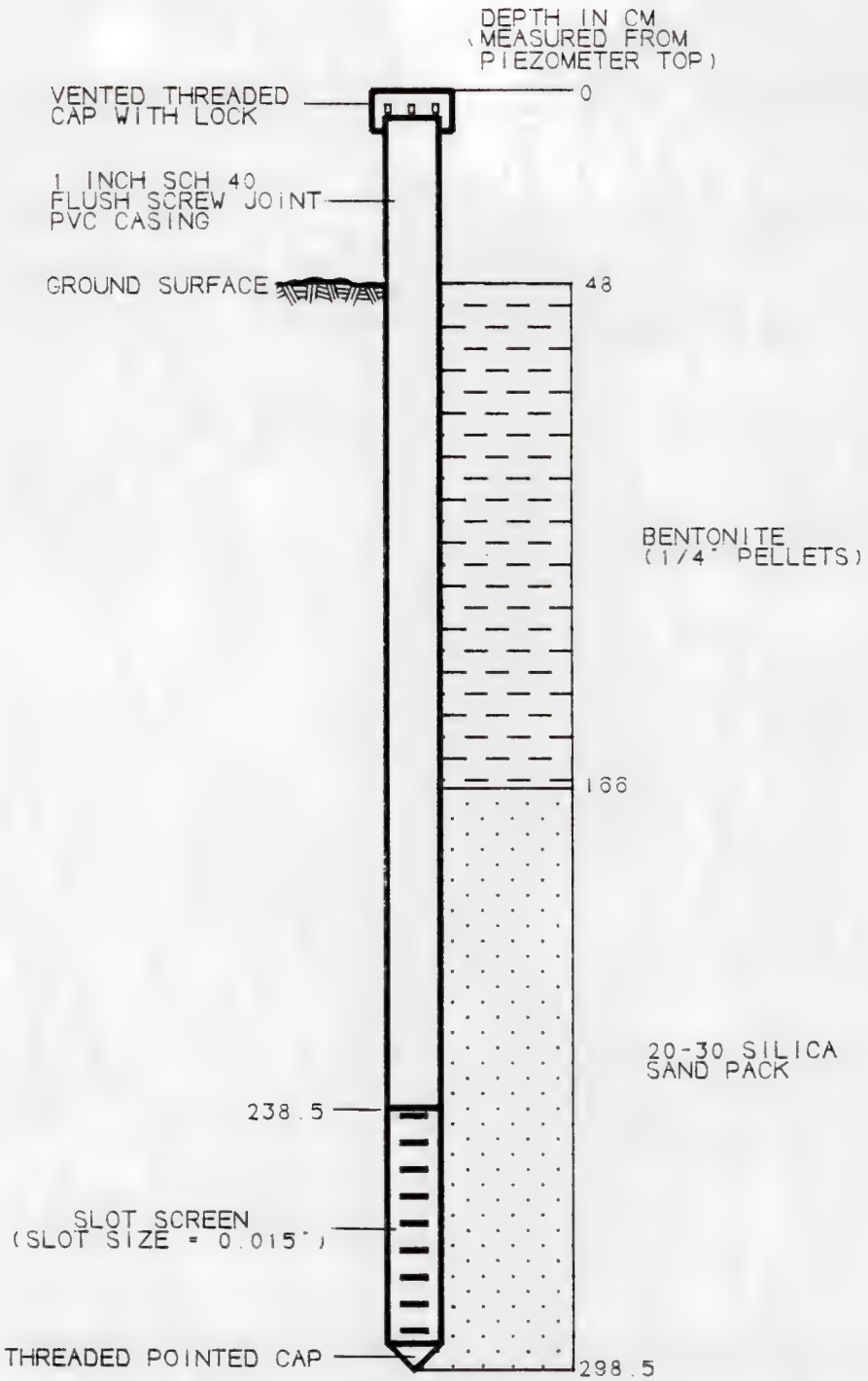
07C17 SITE 7



Schafer

PIEZOMETER COMPLETION DIAGRAM

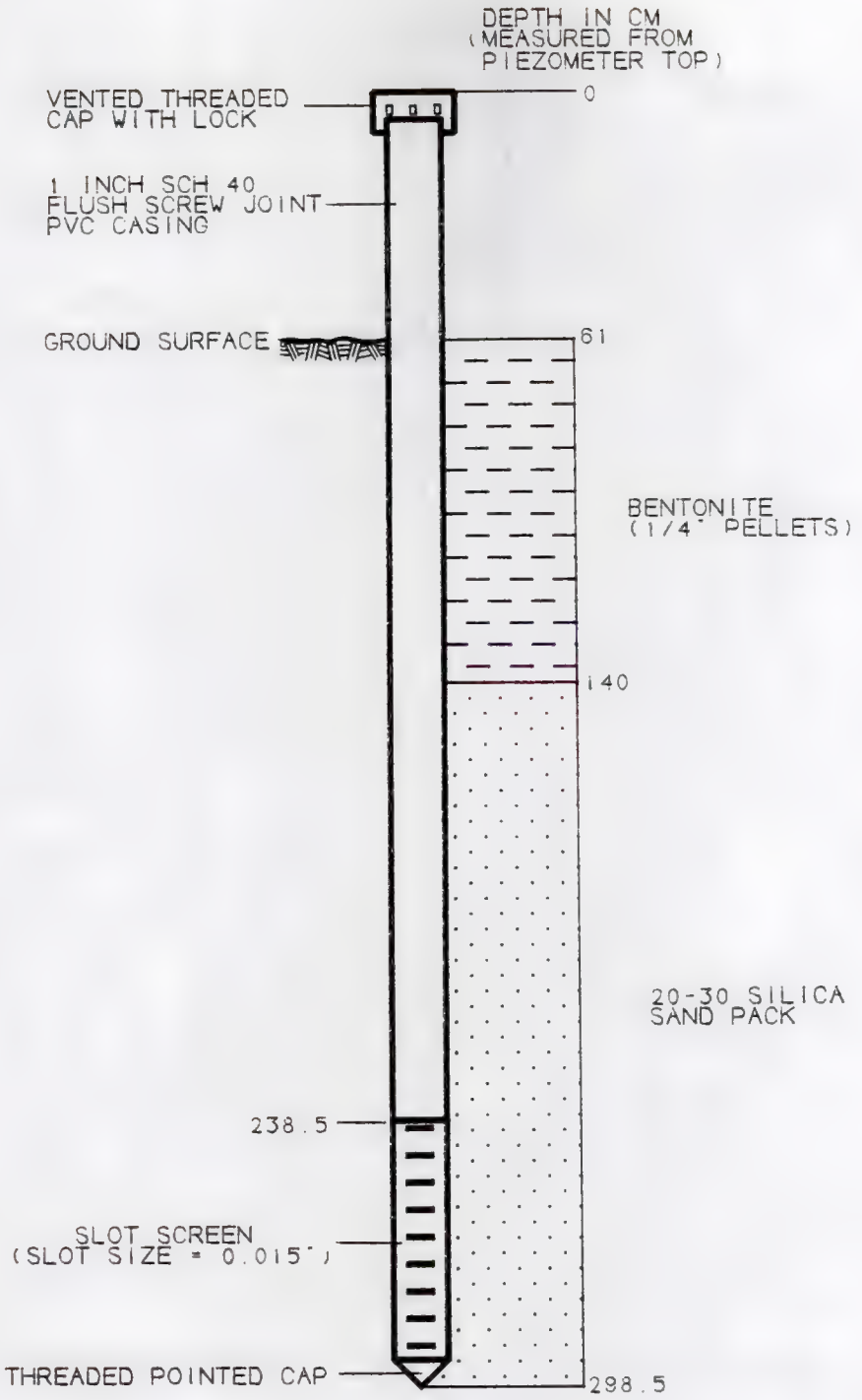
07118 SITE 7



Schafer

PIEZOMETER COMPLETION DIAGRAM

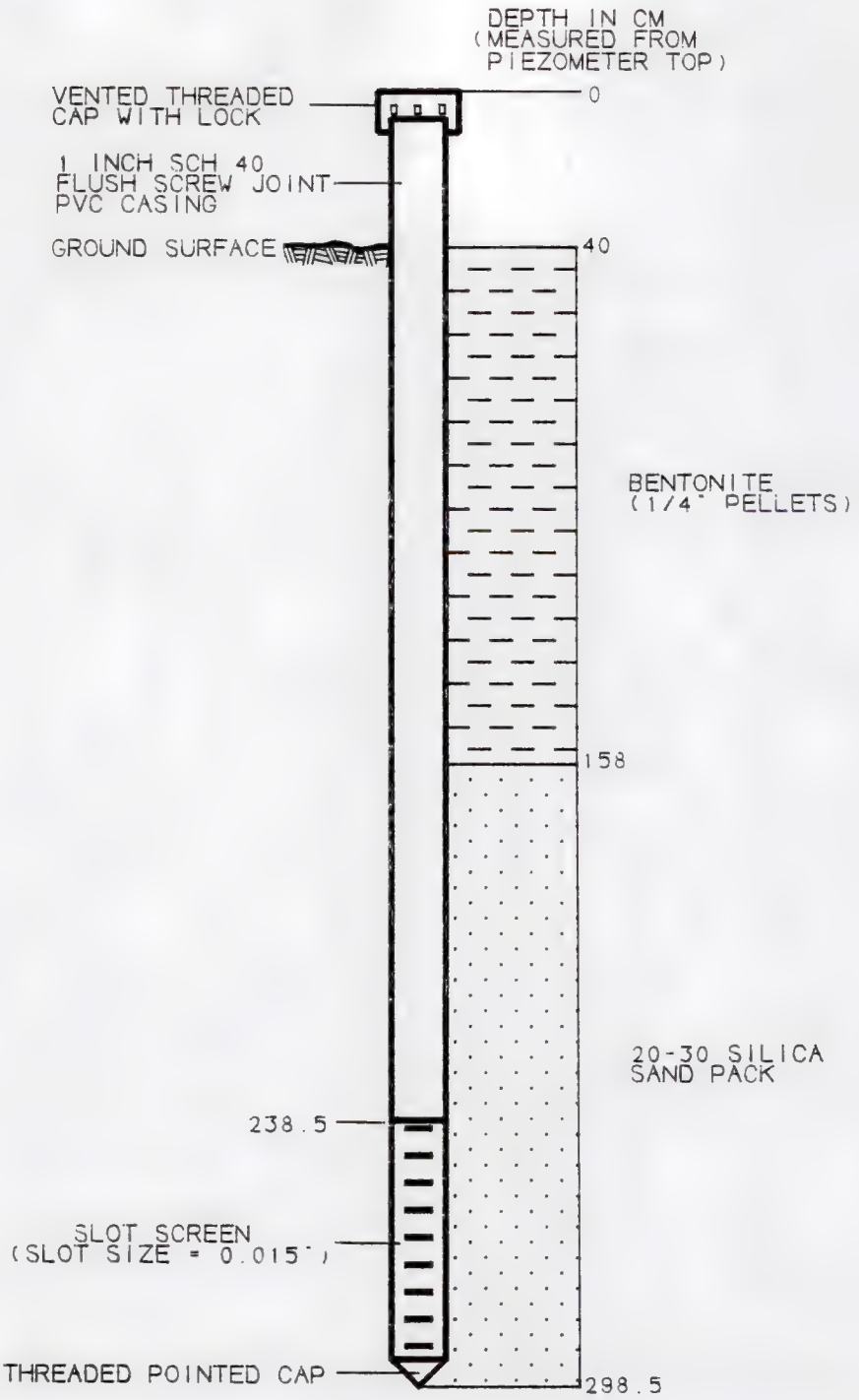
21T13 SITE 21



Schafer

PIEZOMETER COMPLETION DIAGRAM

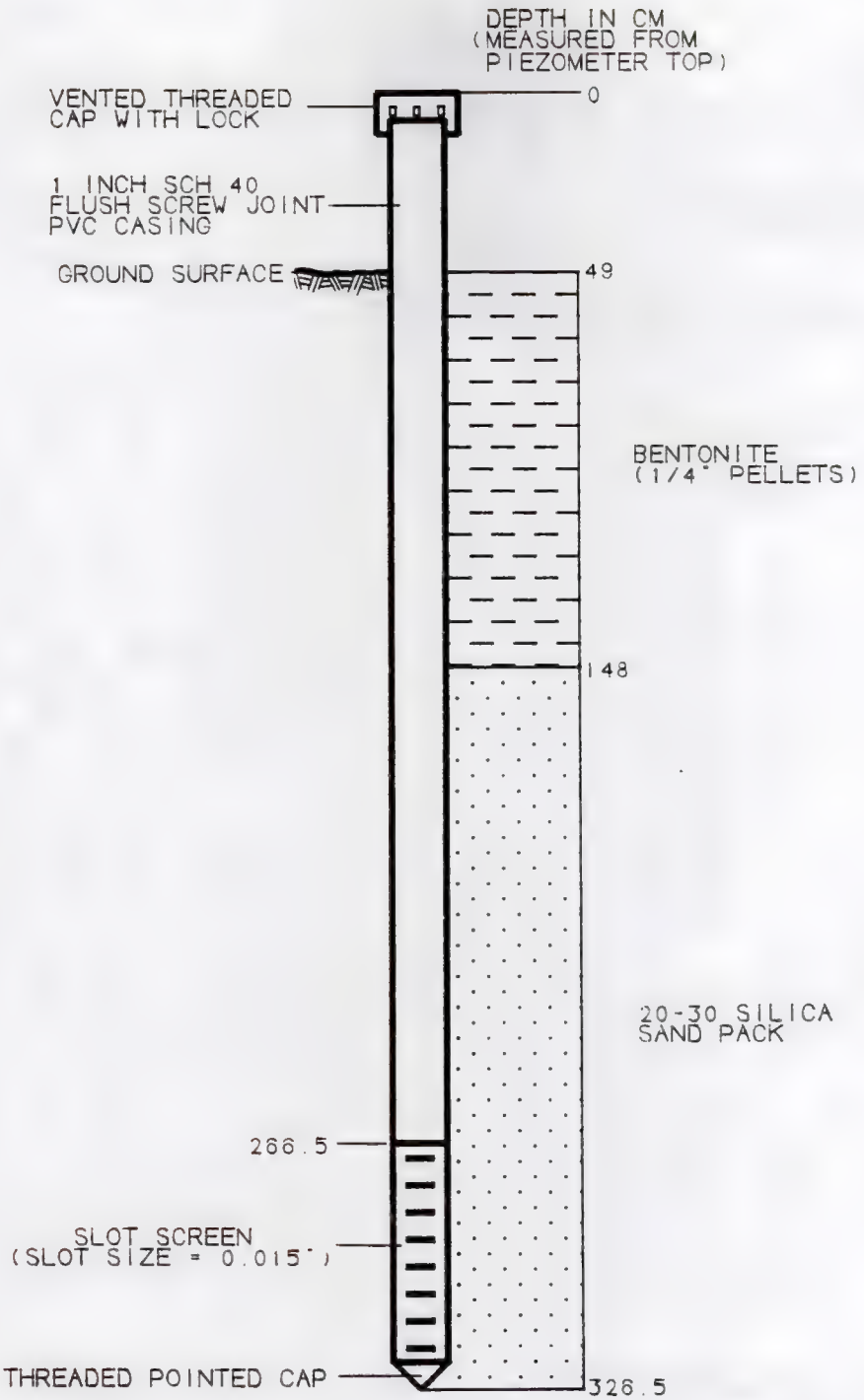
21114 SITE 21



Schafer

PIEZOMETER COMPLETION DIAGRAM

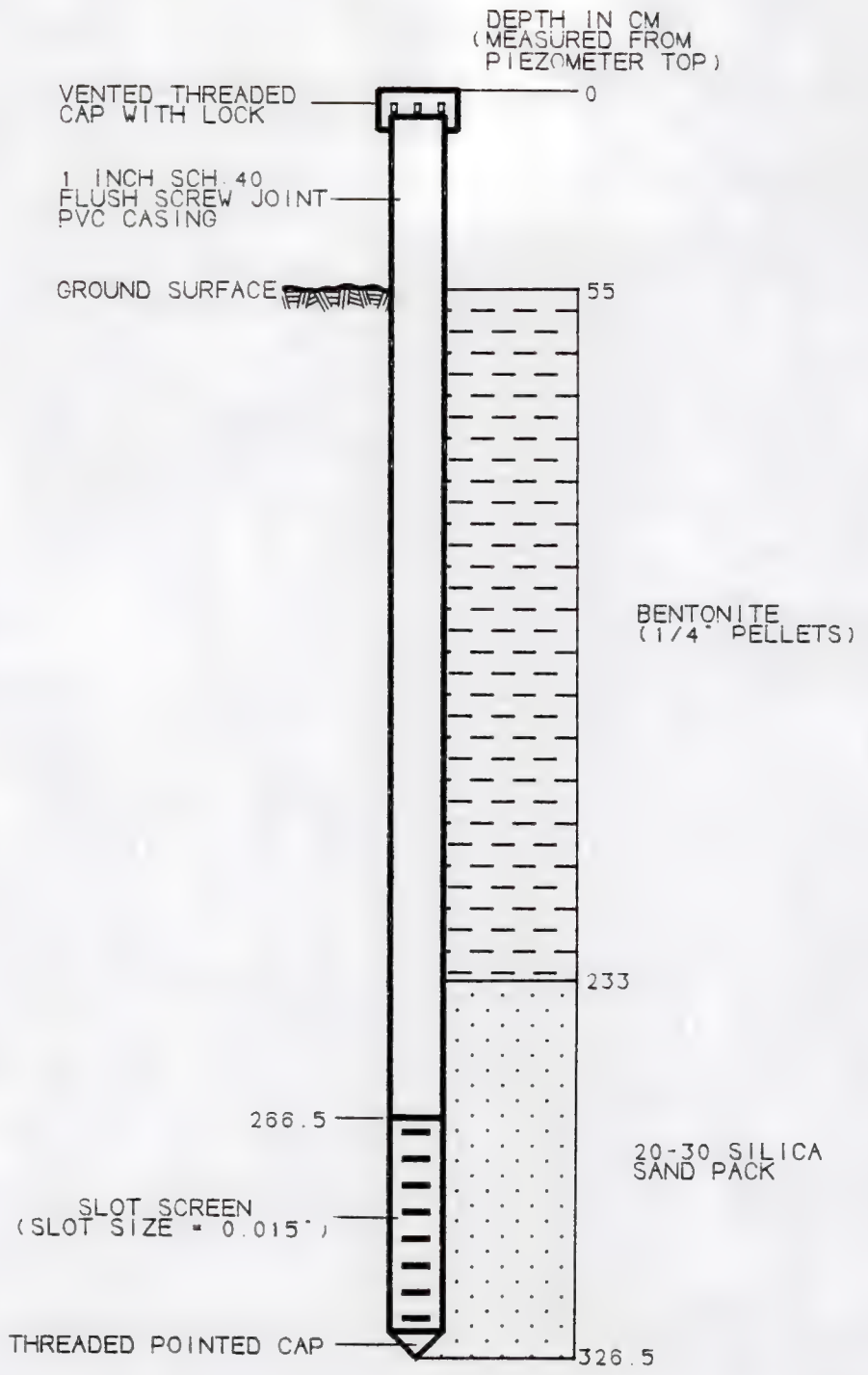
21A15 SITE 21



Schafer

PIEZOMETER COMPLETION DIAGRAM

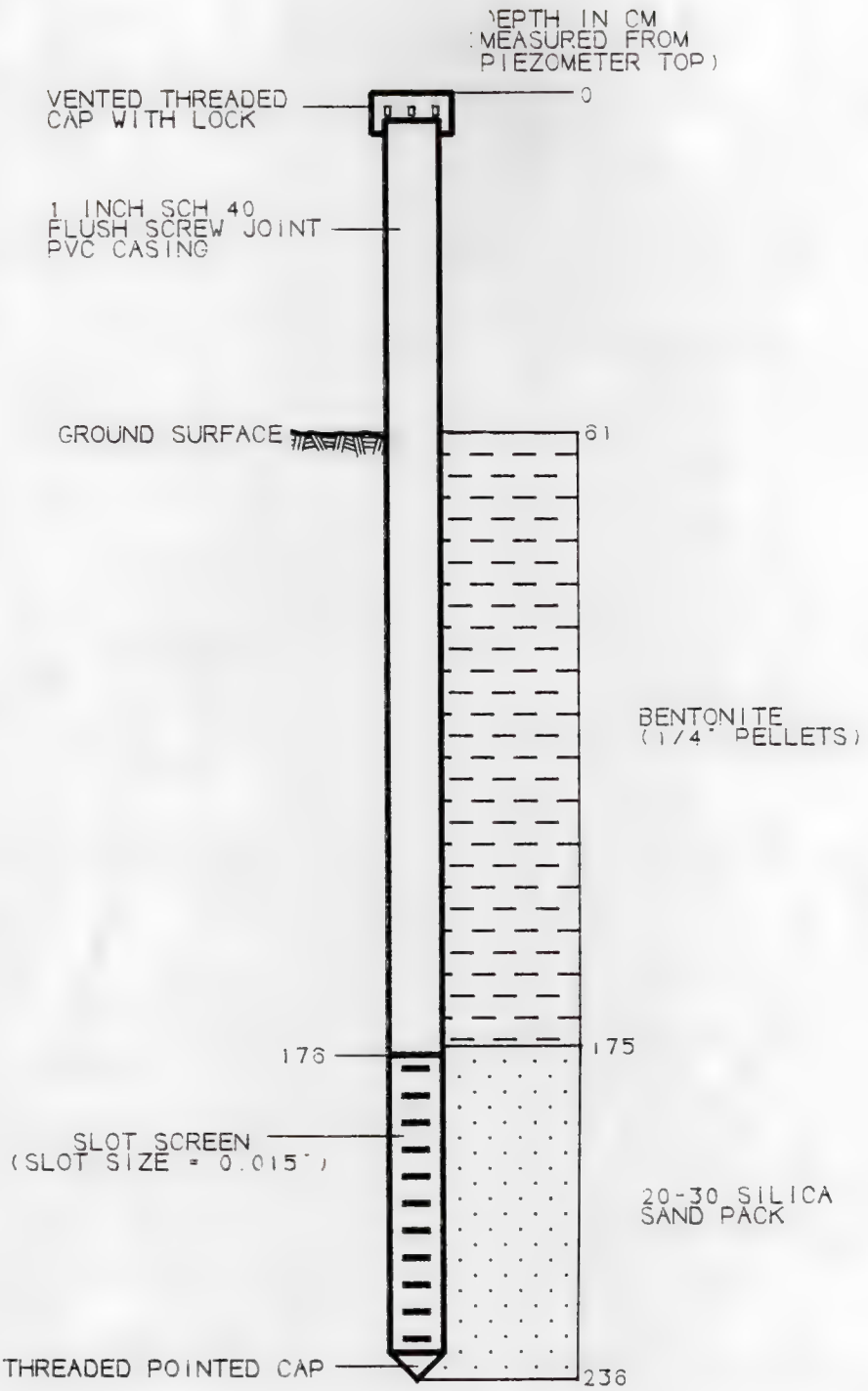
21D17 SITE 21



Schafer

PIEZOMETER COMPLETION DIAGRAM

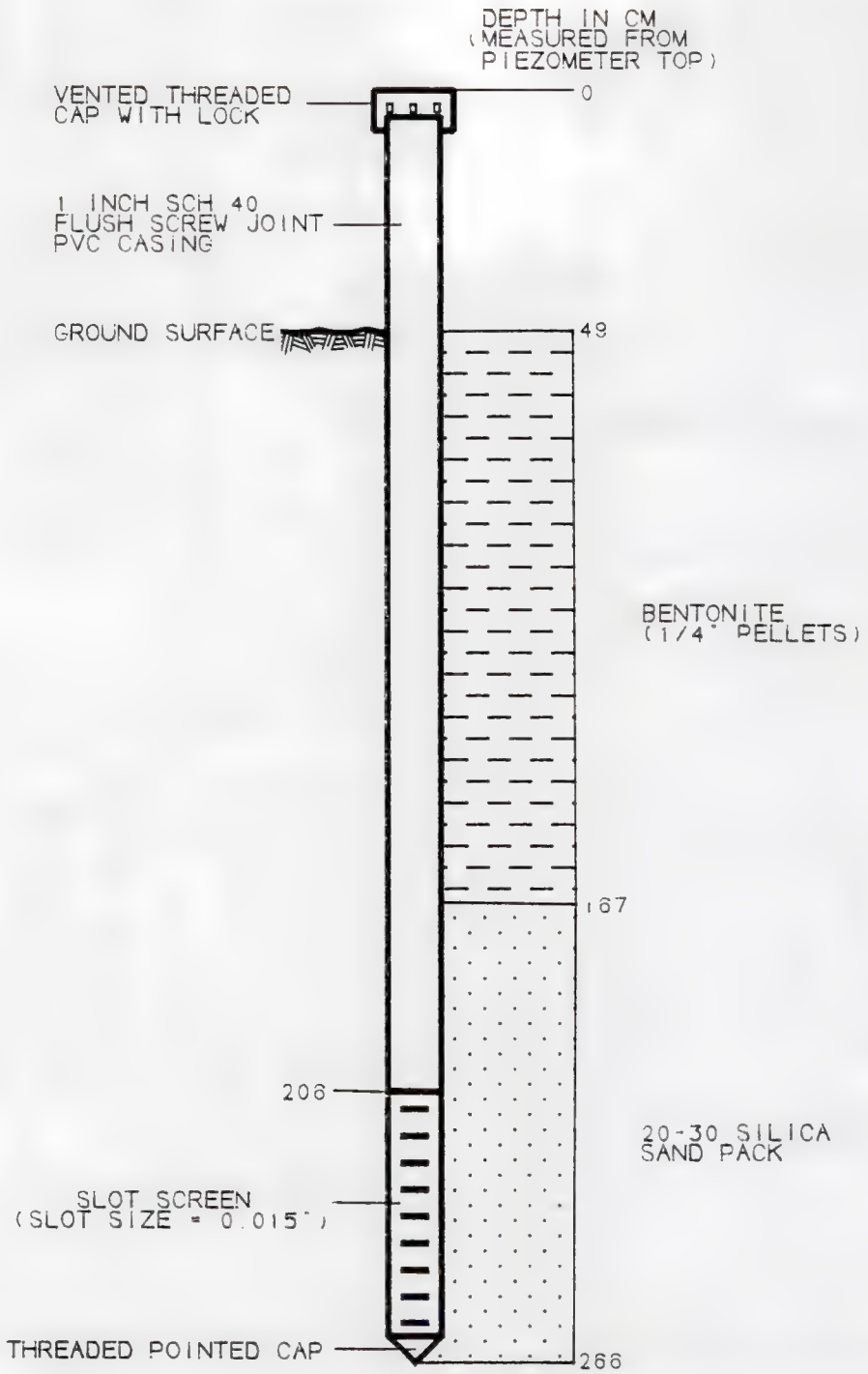
21C18 SITE 21



Schafer

PIEZOMETER COMPLETION DIAGRAM

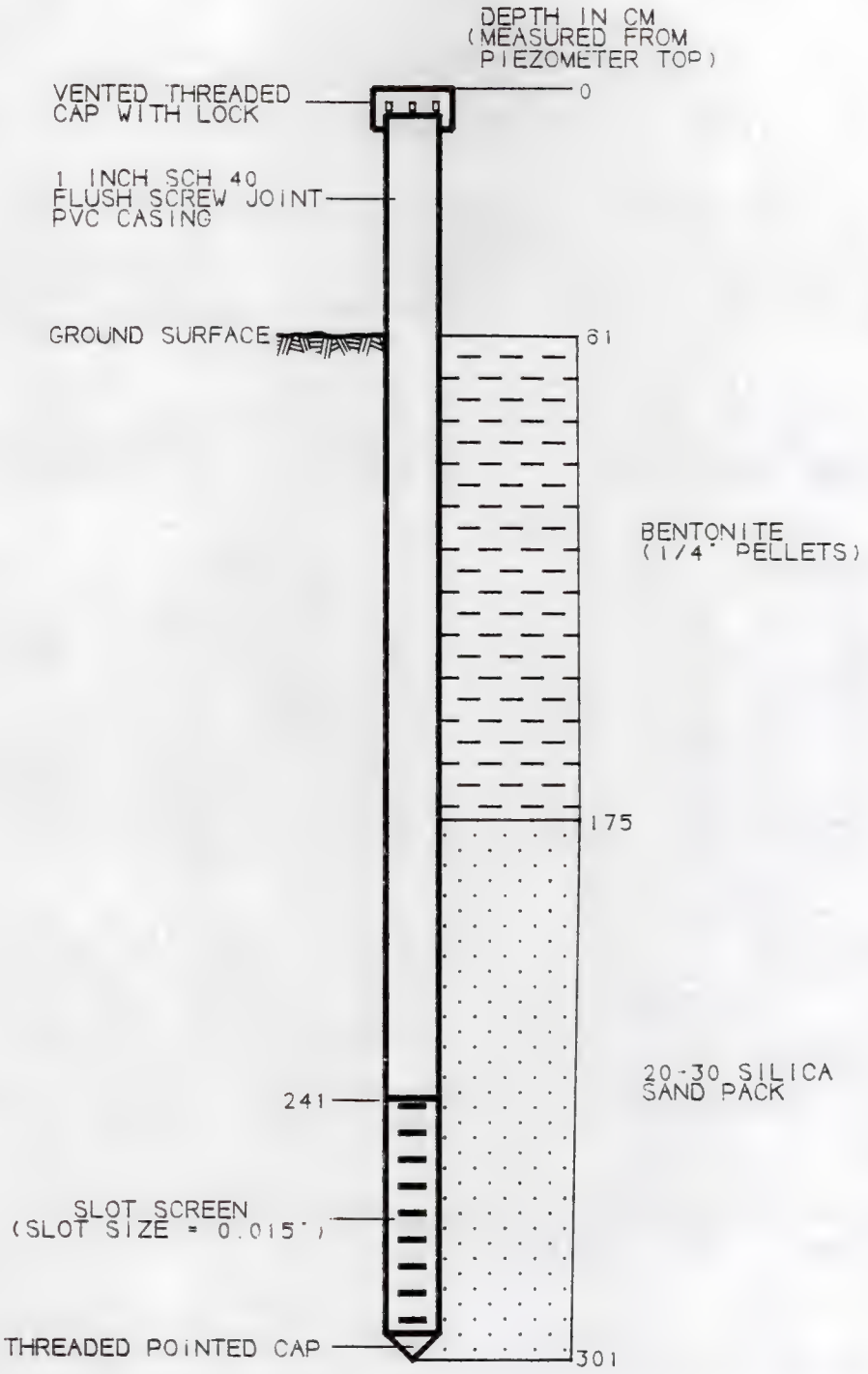
33A07 SITE 33



Schafer

PIEZOMETER COMPLETION DIAGRAM

33110 SITE 33



Schafer

PIEZOMETER COMPLETION DIAGRAM

33C12 SITE 33

02T19-90

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/19/90

COUNTY : SILVER BOW
LEGAL : SE¼, Sec 23, T3N, R8W
DATE INSTALLED: 04/19/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 126 cm (LYSIMETER)
HOLE DIAMETER : 10cm

DRILLING LOG

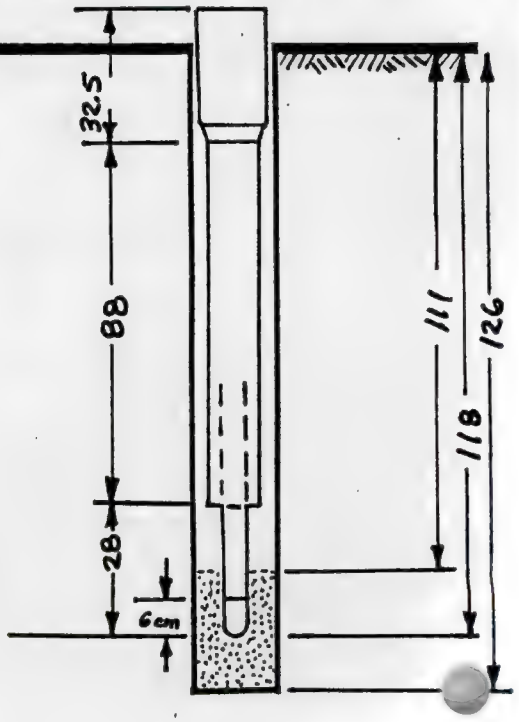
DEPTH INTERVAL			DESCRIPTION
0	to	28 cm	10YR 5/3 APPLIED COARSE SANDY LOAM TOPSOIL
28	to	62	5Y7/4 SILTY TAILINGS w/ SOME Fe STAINING
62	to	91	N4 SILT TAILINGS
91	to	98	5Y4/1 V. FINE SAND TAILINGS
98	to	105	5Y6/1 V. FINE SAND/SILT TAILINGS
105	to	126	6N V. FINE SAND TAILINGS w/ INTERBEDDED SIMILAR SILT
126	to	128	10YR 3/1 SILT TAILINGS
128	to	131	5Y4/1 SILT TAILINGS

INSTALLATION: 02T19-90

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ≈105cm / BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 111cm
BOTTOM LYS/SCREEN : 118
TOP LYS/SCREEN : 112
BACKFILL TYPE/METHOD : ¼" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 28

****

02T19-40

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/19/90

COUNTY : SILVER BOW
LEGAL : SE¼, S23, T3N, R8W
DATE INSTALLED: 04/19/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 85cm
HOLE DIAMETER : 10cm

DRILLING LOG

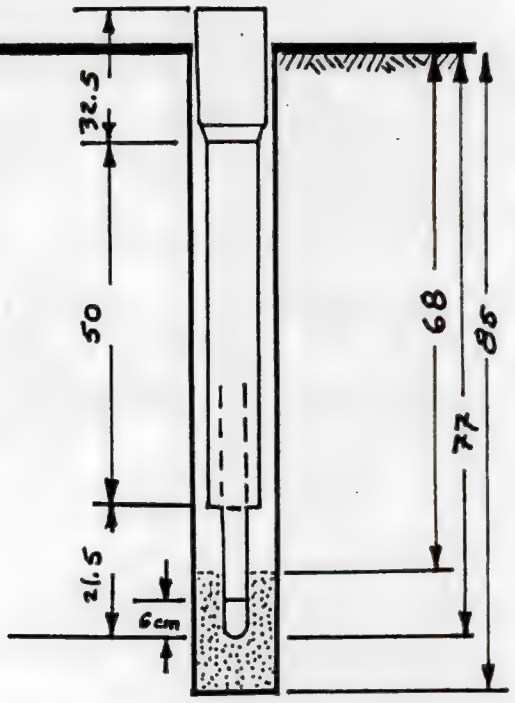
DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 02T19-90
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 02T19-40

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ≠63cm / BENTONITE GROUT
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 77cm
BOTTOM LYS/SCREEN : 77cm
TOP LYS/SCREEN : 71 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 29

****

02C 20-150

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/19/90

COUNTY : SILVER BOW
LEGAL : SE¼, S23, T3N, R8W
DATE INSTALLED: 04/19/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 160 cm
HOLE DIAMETER : 10 cm

DRILLING LOG

DEPTH INTERVAL			DESCRIPTION
0	to	15 cm	10YR6/6 SILT TAILINGS W/SOME SIMILAR N4/ REDUCED (MOTTLED)
15	to	29	N4/ SILT TAILINGS
29	to	52	5Y5/1 SILT TAILINGS
52	to	57	5Y5/1 V. FINE SAND TAILINGS
57	to	85	5N SILT TAILINGS W/ THIN LAYERS (1cm) 10YR3/1 SILT TAILINGS
85	to	107	10YR3/1 MIC SILT, SANDY
107	to	112	5Y6/1 FINE WELL SORTED SAND
112	to	118	6N SANDY SILT

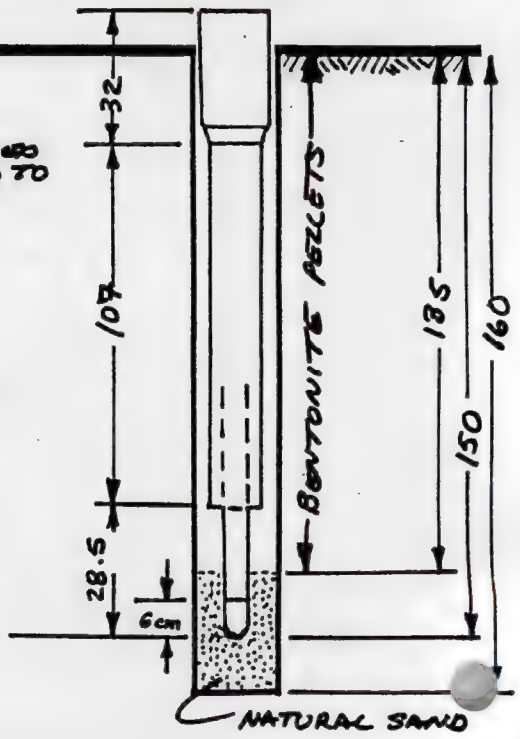
CONT. BELOW

INSTALLATION: 02C 20-150

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : NONE
PACK TYPE/DEPTH : ~~SILICA (MINUS 200 MESH)~~ NONE USED NAT. SAND TO 135
BOTTOM LYS/SCREEN : 150
TOP LYS/SCREEN : 144
BACKFILL TYPE/METHOD : ¼ BENTONITE PELLETS

INSTALLATION DIAGRAM



02C 20-150 LOG, CONT.

118-136 6N MED. SAND

136-160 10YR 5/2 MED TO COARSE SAND (SATURATED)

NOTES: LYSIMETER BODY # 30

****

02C 20-90

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/19/90

COUNTY : SILVER BOW
LEGAL : SE¼, S23, T3N, R8W
DATE INSTALLED: 04/19/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 97cm
HOLE DIAMETER : 10 cm

DRILLING LOG

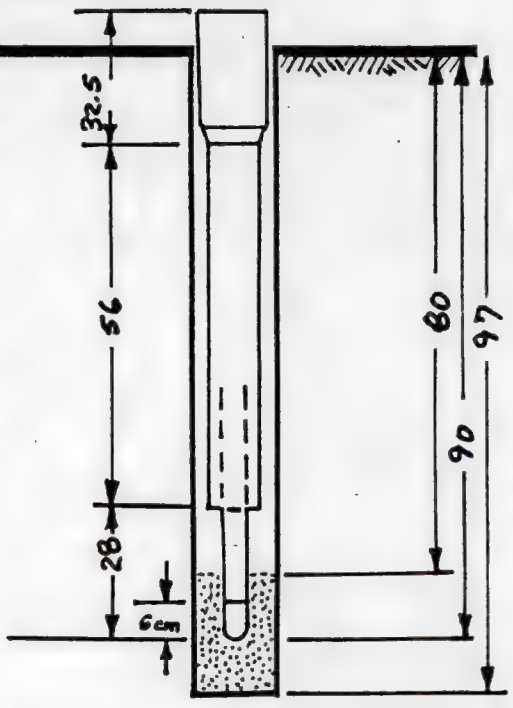
DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 02C 20-150
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 02C 20-90

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : 475cm / BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 80cm
BOTTOM LYS/SCREEN : 90 cm
TOP LYS/SCREEN : 84 cm
BACKFILL TYPE/METHOD : 1/4 BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY #31

****

02C 20-40

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/19/90

COUNTY : SILVER BOW
LEGAL : SE1/4, S23, T3N, R8W
DATE INSTALLED: 04/19/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 48cm
HOLE DIAMETER : 10cm

DRILLING LOG

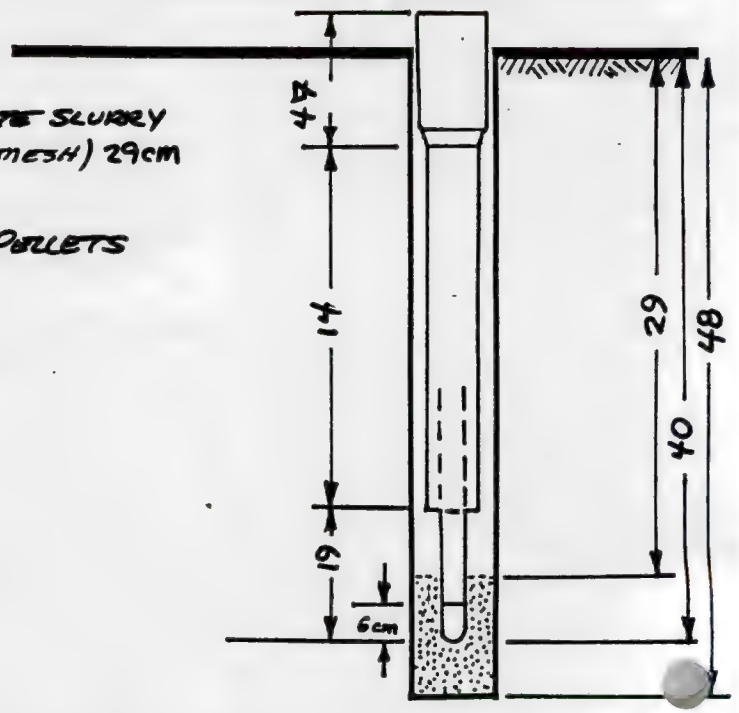
DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 02C 20-150
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 02C 20-40

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ±25cm/BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 29cm
BOTTOM LYS/SCREEN : 40cm
TOP LYS/SCREEN : 34 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 32

****

02X21-90

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/19/90

COUNTY : SILVER BOW
LEGAL : SE1/4, S23, T3N, R8W
DATE INSTALLED: 04/19/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 100 cm
HOLE DIAMETER : 10 cm

DRILLING LOG

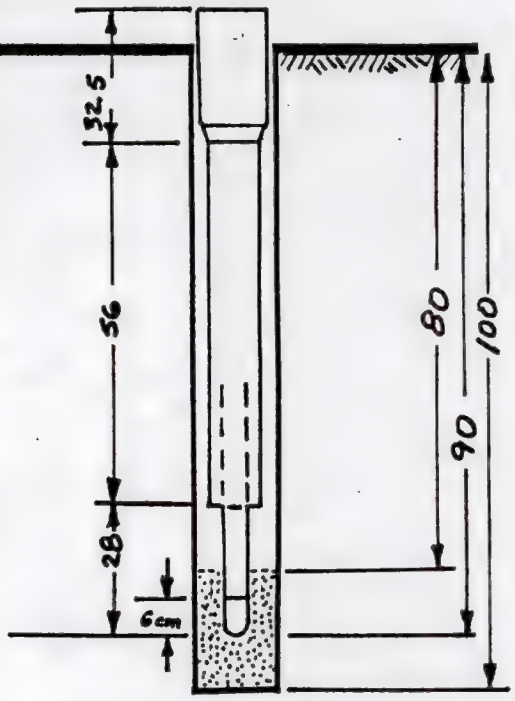
DEPTH INTERVAL			DESCRIPTION
0	to	18 cm	5Y5/1 MIXED SILT TAILINGS, SOME Fe STAIN & AMENDMENT
18	to	34	5GY4/1 SILT TAILINGS
34	to	60	N4 SILT TAILINGS
60	to	100	N5 SILT TAILINGS W/ THIN LAYERS (1cm)
	to		10YR 3/1 SILT TAILINGS
	to		
	to		
	to		

INSTALLATION: 02X21-90

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ~75cm / BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 80cm
BOTTOM LYS/SCREEN : 90cm
TOP LYS/SCREEN : 84cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 33

****

02X21-40

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/19/90

COUNTY : Silven Bow
LEGAL : SE¼, S23, T3N, R8W
DATE INSTALLED: 04/19/90

DRILLING:

****

METHOD : Bucket Auger
DRILLER : Goering / Jennings

HOLE DEPTH : 48 cm
HOLE DIAMETER : 10 cm

DRILLING LOG

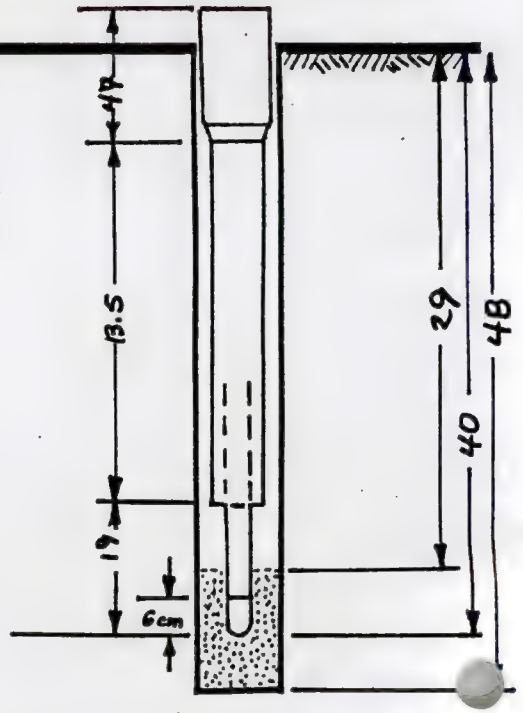
DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 02X21-90
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 02X21-40

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH : NONE
TOP GROUT TYPE/DEPTH : 25cm / BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH)
BOTTOM LYS/SCREEN : 40 cm
TOP LYS/SCREEN : 34 cm
BACKFILL TYPE/METHOD : ¼" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY #34

****

02A22-90

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/19/90

COUNTY : SILVER BOW
LEGAL : SE¼, S23 T3N, R8W
DATE INSTALLED: 04/19/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOEDING / JENNINGS

HOLE DEPTH : 100 cm
HOLE DIAMETER : 10 cm

DRILLING LOG

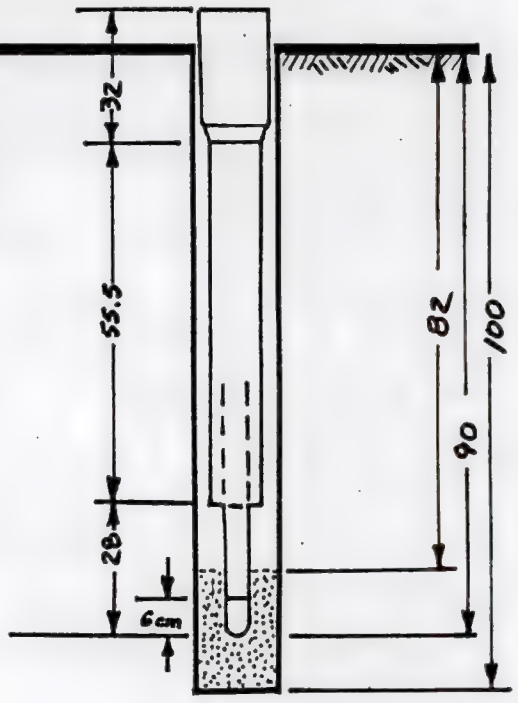
DEPTH INTERVAL			DESCRIPTION
0	to	33 cm	5Y 7/4 SANDY SILT TAILINGS
33	to	42	2.5Y 5/2 V. FINE SAND TAILINGS
42	to	58	2.5Y 4/0 SILT TAILINGS, FINE STRATIFIED
58	to	66	2.5Y 6/2 SILT TAILINGS
66	to	70	5Y 6/6 SILT TAILINGS
70	to	86	N4/ SILT TAILINGS W/ THIN TO MED LAYERS 10YR3/1 SILT TAILINGS
86	to	98	10YR4/1 PEAT/SILT
98	to	100	N4/ SANDY SILT

INSTALLATION: 02A22-90

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : #75cm/BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 82cm
BOTTOM LYS/SCREEN : 90cm
TOP LYS/SCREEN : 84cm
BACKFILL TYPE/METHOD : ¼" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY #35

****

02A22-40

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/19/90

COUNTY : SILVER BOW
LEGAL : SE1/4, S23 T3N, R8W
DATE INSTALLED: 04/19/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 48cm
HOLE DIAMETER : 10cm

DRILLING LOG

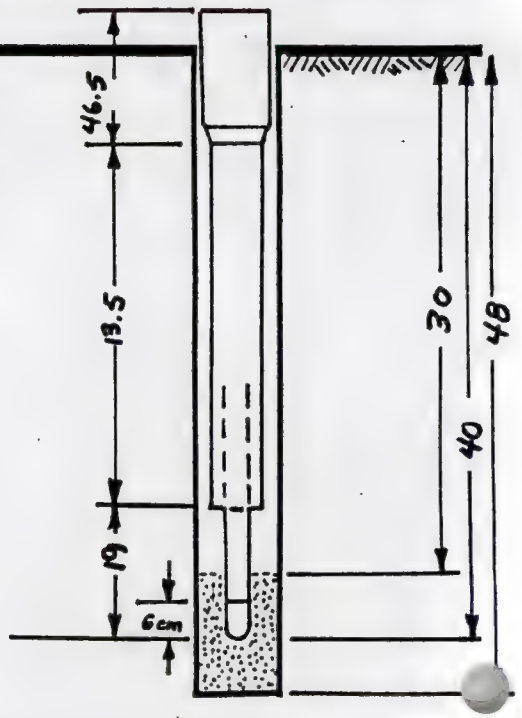
DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 02A22-90
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION:

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ±25cm/BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 30cm
BOTTOM LYS/SCREEN : 40cm
TOP LYS/SCREEN : 34cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 36

****

02I 23-150

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/20/90

COUNTY : SILVER BOW
LEGAL : SE¼, SEC 23, T3N, R8W
DATE INSTALLED: 04/20/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 157cm
HOLE DIAMETER : 10 cm

DRILLING LOG

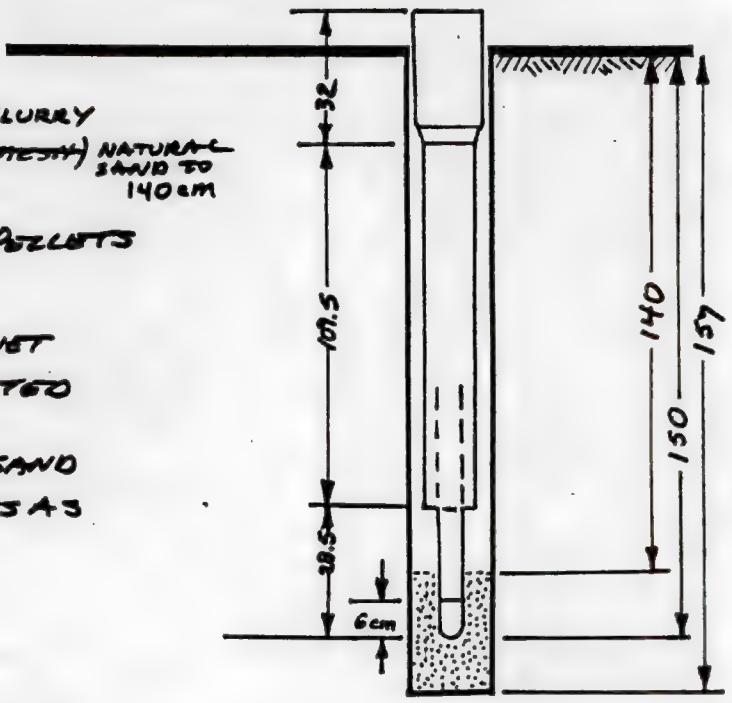
DEPTH INTERVAL			DESCRIPTION
0	to	21 cm	10YR6/4 MIXED SILT TAILINGS W/FE STAIN
21	to	26	5Y7/6 SILT/V. FINE SAND TAILINGS
26	to	41	NS/V.F. SAND TAILINGS W/2.5YR 4/0 SILT TAILINGS LENS'
41	to	59	7.5 YR 4/0 SILT TAILINGS
59	to	66	10YR3/1 SILT TAILINGS
66	to	91	NS/SILT TAILINGS W/SOME AMENDMENTS
91	to	102	10YR3/1 SILT TAILINGS
102	to	112	5Y6/4 FINE-MED SAND
			CONT. BELOW

INSTALLATION: 02I 23-150

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : 135cm/BENTONITE SLURRY
PACK TYPE/DEPTH : ~~SILICA (MINUS 200 MESH)~~ NATURAL SAND TO 140cm
BOTTOM LYS/SCREEN : 150 cm
TOP LYS/SCREEN : 144 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



LOG 02I 23-150 CONT.

112-118 N4/ SILT TAILINGS, SANDY @ BASE - WET
118-134 5Y6/1 MED TO COARSE SAND, SATURATED
134-138 N4/ SLIGHTLY SANDY SILT
138-157 N4/ TO 5Y6/1 MED TO COARSE SAND W/ OCC 1-5cm SANDY SILT ZONES AS ABOVE UNIT.

NOTES: LYSIMETER BODY #37

****

02I23-90

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/20/90

COUNTY : SILVER BOW
LEGAL : SE1/4, S23, T3N, R8W
DATE INSTALLED: 04/20/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 97cm
HOLE DIAMETER : 10 cm

DRILLING LOG

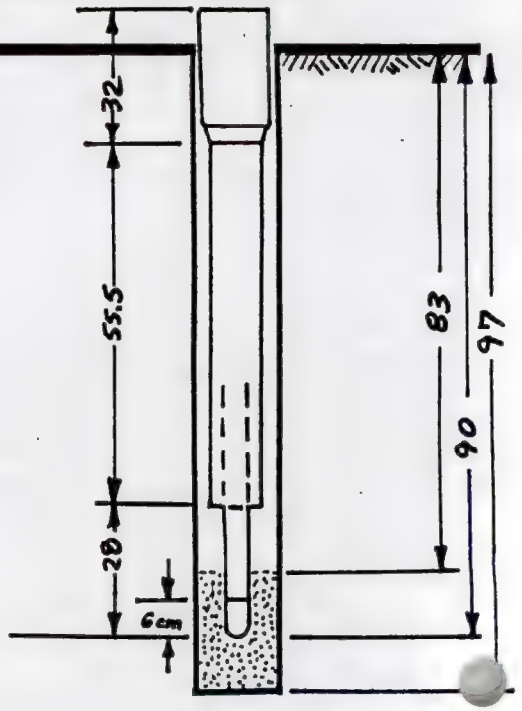
DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 02I23-150
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 02I23-90

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ~78cm/BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 83cm
BOTTOM LYS/SCREEN : 90 cm
TOP LYS/SCREEN : 84 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY #38

****

02/12

02I23-40

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/20/90

COUNTY : SILVER BOW
LEGAL : SE1/4, Sec 23, T3N, R8W
DATE INSTALLED: 04/20/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 48cm
HOLE DIAMETER : 10 cm

DRILLING LOG

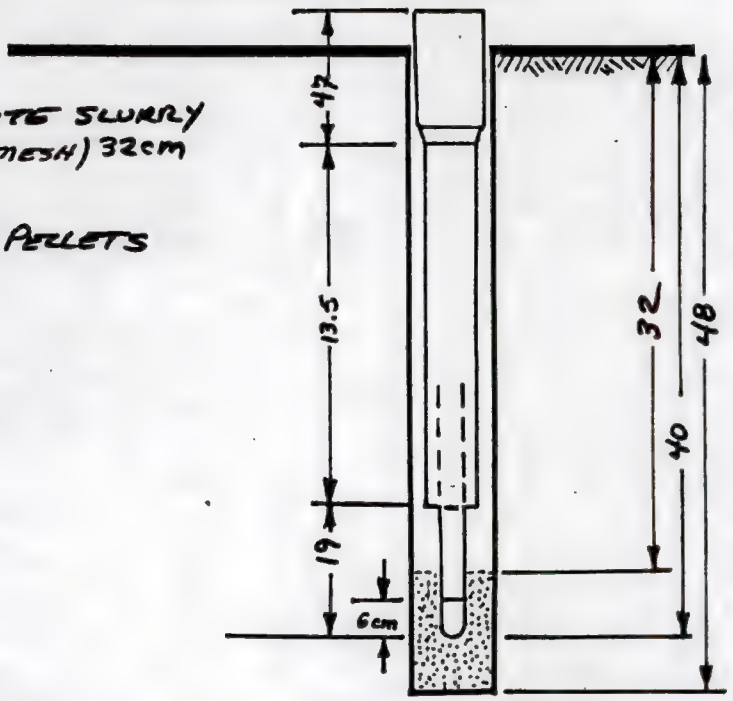
DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 02I23-150
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION:

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : 227cm / BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 32cm
BOTTOM LYS/SCREEN : 40cm
TOP LYS/SCREEN : 34 cm
BACKFILL TYPE/METHOD : 1/4" BENTONALITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 39

****

02D24-150

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/20/90

COUNTY : Silver Bow
LEGAL : SE¼, Sec 23, T3N, R8W
DATE INSTALLED: 04/20/90

DRILLING:

****

METHOD : Bucket Auger
DRILLER : Goeling/Jennings

HOLE DEPTH : 158 cm
HOLE DIAMETER : 10 cm

DRILLING LOG

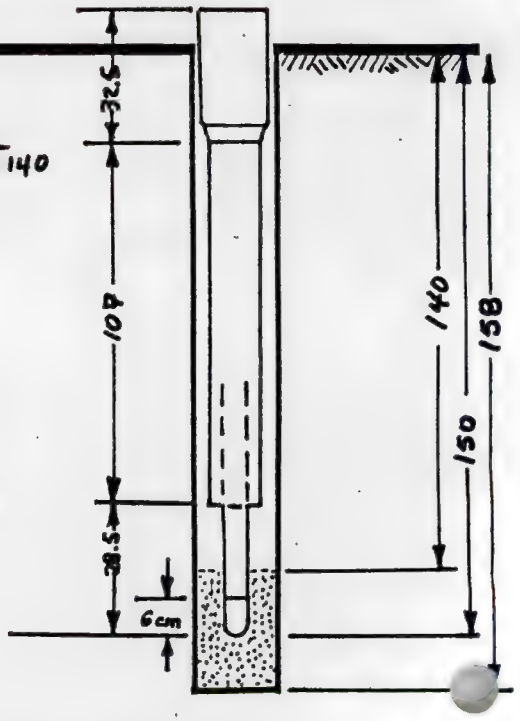
DEPTH INTERVAL			DESCRIPTION
0	to	27 cm	5YR6/2 SILT TAILINGS W/ AMENDMENTS, SOME N4/ ⅓ 5Y7/6 TAILINGS ⅔ Cu STAIN
27	to	75	N4/5Y7/6 MIXED SILT TAILINGS W/ SOME R3/ SILT MATERIAL
75	to	100	N4/N5/ MIXED V.F. SAND/SILT TAILINGS
	to		W/ MINOR AMOUNTS OF 5Y7/6 SILT TAILINGS
100	to	112	10YR3/1 SILT TAILINGS W/ MINOR MIXED TO N4/SILT TAILINGS
112	to	140	5Y5/1 V.F SAND
140	to	146	10YR7/4 SANDY AMENDMENT ZONE
146	to	158	10YR3/1 MED/COARSE SAND W/ SOME ORGANIC MATERIAL - SATURATED

INSTALLATION:

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ≈135cm/BENTONITE SLURRY
PACK TYPE/DEPTH : ~~SILICA (100 MESH)~~ NATURAL SAND TO 140
BOTTOM LYS/SCREEN : 150 cm
TOP LYS/SCREEN : 144 cm
BACKFILL TYPE/METHOD : ¼" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 40

****

02D24-90

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/20/90

COUNTY : SILVER BOW
LEGAL : SE¼, S23, T3N, R8W
DATE INSTALLED: 04/20/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 98cm
HOLE DIAMETER : 10cm

DRILLING LOG

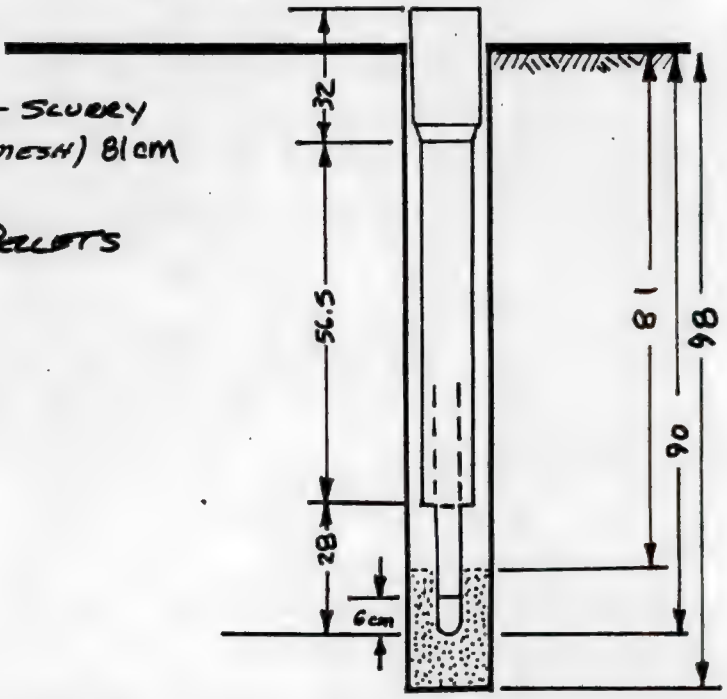
DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 02D24-150
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION:

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : 4.75cm / BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 81cm
BOTTOM LYS/SCREEN : 90cm
TOP LYS/SCREEN : 84cm
BACKFILL TYPE/METHOD : ¼" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY #43

****

02/15

02D24-40

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/20/90

COUNTY : SILVER BOW
LEGAL : SE1/4, S23, T3N, R8W
DATE INSTALLED: 04/20/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOEDING / JENNINGS

HOLE DEPTH : 48cm
HOLE DIAMETER : 10cm

DRILLING LOG

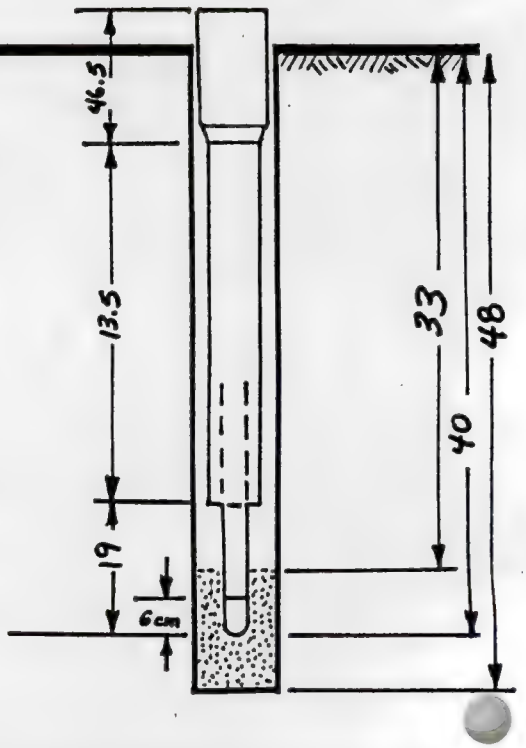
DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 02D24-150
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION:

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ±28 cm/ BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 33cm
BOTTOM LYS/SCREEN : 40 cm
TOP LYS/SCREEN : 34 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 42

****

07T13-90

LYSIMETER/WELL INSTALLATION REPORT

LOCATION: 07T13 (Rocker) SHEET 1 OF 2

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/18/90

COUNTY : Silver Bow
LEGAL : NW1/4, S22, T3N, R8W
DATE INSTALLED: 04/18/90

DRILLING:

****

METHOD : Bucket Auger
DRILLER : Goering / Jennings

HOLE DEPTH : 144 cm
HOLE DIAMETER : 10 cm

DRILLING LOG

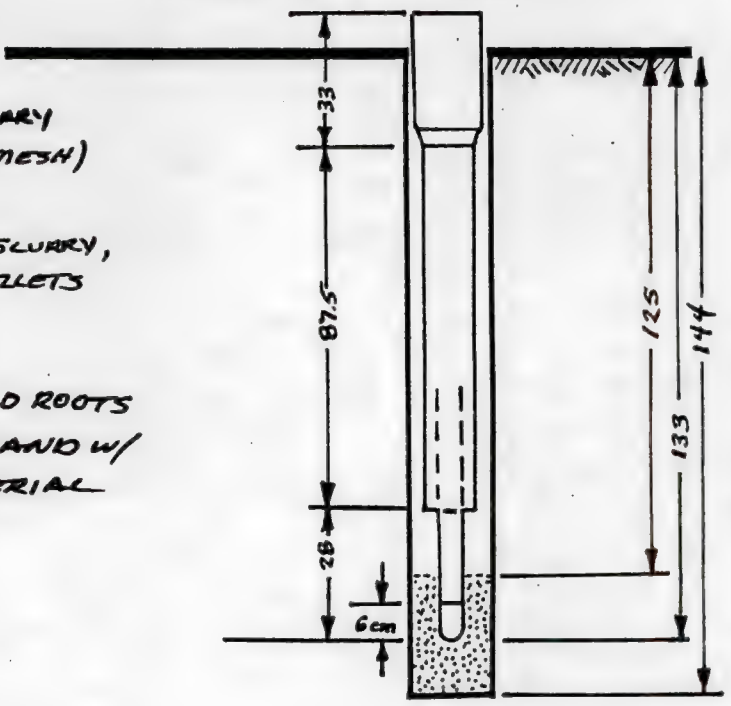
DEPTH INTERVAL			DESCRIPTION
0	to	43 cm	10YR 5/3 SANDY LOAM APPLIED TOPSOIL
43	to	68	10YR 4/2 MIXED TAILINGS (SANDY) W/
	to		MIXED SILT
68	to	97	10YR 4/2 SILT W/ ORGANIC DEBRIS
	to		(DECOMPOSED WOOD)
97	to	111	10YR 3/2 COARSE SAND W/ WOOD FRAG.
111	to	120	5Y 4/1 SANDY SILT W/ ABUND. ORGANIC MATERIAL
120	to	134	5Y 4/1 SILTY FINE SAND W/ THIN SILT ZONES WET. CONT. BELOW

INSTALLATION: 07T13-90

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : 12/BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH)
BOTTOM LYS/SCREEN : 133 cm
TOP LYS/SCREEN : 127 cm
BACKFILL TYPE/METHOD : 4 cm BENTONITE SLURRY, 1/4 BENTONITE PELLETS TO SURFACE

INSTALLATION DIAGRAM



LOG, CONT

134-140 cm 2.5YR 2.5/0 MIC SILT W/ OLD ROOTS

140-144 5Y 5/1 SLIGHTLY SILTY MED. SAND W/ OCC LENS OF ORGANIC MATERIAL

NOTES: LYSIMETER BODY #16

****

07T13-40

LYSIMETER/WELL INSTALLATION REPORT

LOCATION: 07T13 (ROCKER) SHEET 2 OF 2

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/18/90

COUNTY : SILVER BOW
LEGAL : NW1/4, S22, T3N, R8W
DATE INSTALLED: 04/18/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 97cm
HOLE DIAMETER : 10 cm

DRILLING LOG

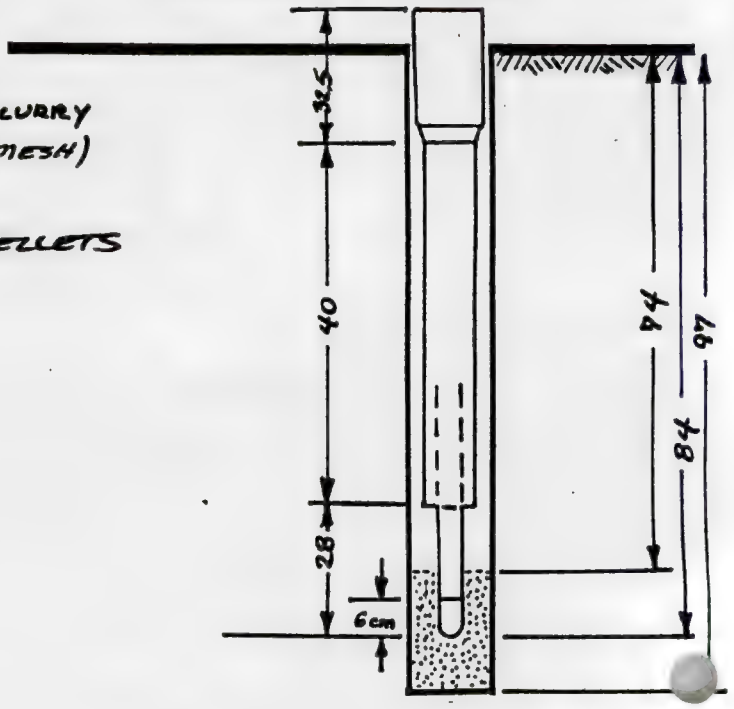
DEPTH INTERVAL			DESCRIPTION
0	to	50 cm	SEE SHEET 1 OF 2,
	to		LOG IDENTICAL EXCEPT
	to		07T13-40 HAS 50cm TOPSOIL
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 07T13-40

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : 70, BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH)
BOTTOM LYS/SCREEN : 84 cm
TOP LYS/SCREEN : 78 cm
BACKFILL TYPE/METHOD : 1/4 BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY #17

****

07D14-150

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/18/90

COUNTY : SILVER BOW
LEGAL : NW1/4, S22, T3N, R8W
DATE INSTALLED: 04/18/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOEDING / JENNINGS

HOLE DEPTH :
HOLE DIAMETER : 10 cm

DRILLING LOG

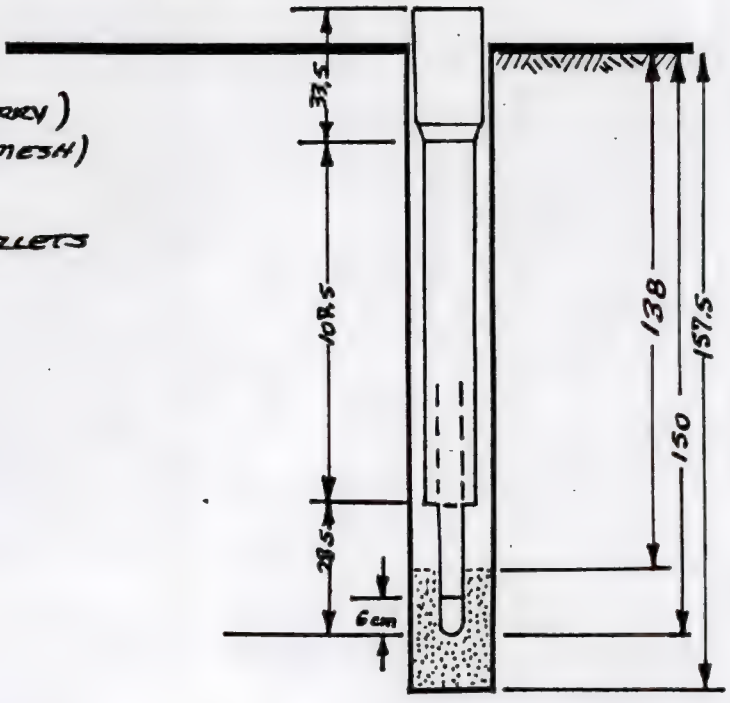
DEPTH INTERVAL			DESCRIPTION
0	to	109 cm	10YR 4/2 SANDY LOAM W/ AMENDMENTS, OCC 10YR 5/4
	to		SILT TAILINGS SLUMPS, B3-BB1S 5Y 4/1 MIC SILT
109	to	117	10YR 3/2 SLIGHTLY SANDY SILT, VERY MIC
117	to	123	10YR 5/4 SANDY SILT, DIST. VARVE LIKE LAYERING, V. MIC
123	to	142	10YR 3/2 COARSE SAND-GRAVEL W/ OCC THIN SILT LAYERS &
	to		ORGANIC DETRIS. SATURATED
142	to	154.5	2.5 YR 3/0 DARK MIC SILT W/ OLD FINE ROOTS
154.5	to	157.5	N4 SILTY MED SAND

INSTALLATION: 07D14-150

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : 133 (BENTONITE SLURRY)
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH)
BOTTOM LYS/SCREEN : 150 cm
TOP LYS/SCREEN : 144 cm
BACKFILL TYPE/METHOD : 1/4 BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 15

****

07D14-90

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04 / 18 / 90

COUNTY : Silver Bow
LEGAL : NW¼, S22, T3N, R8W
DATE INSTALLED: 04 / 18 / 90

DRILLING:

****

METHOD : Bucket Auger
DRILLER : Goering / Jennings

HOLE DEPTH : 98 cm
HOLE DIAMETER : 10 cm

DRILLING LOG

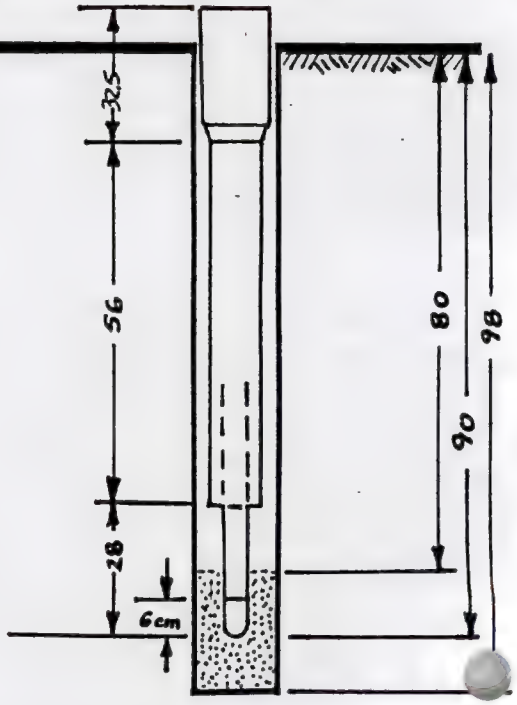
DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 07D14-150
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 07D14-90

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : 75cm / BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH)
BOTTOM LYS/SCREEN : 90 cm
TOP LYS/SCREEN : 84 cm
BACKFILL TYPE/METHOD : ¼ BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: Lysimeter Body # 18

****

07D14-40

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/18/90

COUNTY : Silver Bow
LEGAL : NW¼, S22, T3N, R8W
DATE INSTALLED: 04/18/90

DRILLING:

****

METHOD : Bucket Auger
DRILLER : Goeding / Jennings

HOLE DEPTH : 48.5 cm
HOLE DIAMETER : 10 cm

DRILLING LOG

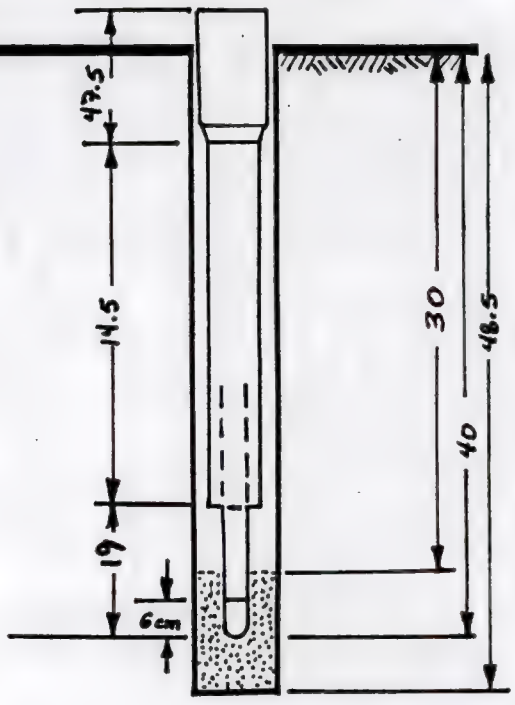
DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 07D14-150
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 07D14-40

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ±25 cm / BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 30cm
BOTTOM LYS/SCREEN : 40 cm
TOP LYS/SCREEN : 34 cm
BACKFILL TYPE/METHOD : ¼ BENTONITE P

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 19

****

07A16-90

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/18/90

COUNTY : SILVER BOW
LEGAL : NW¼, S22, T3N, R8W
DATE INSTALLED: 04/18/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 98 cm
HOLE DIAMETER : 10 cm

DRILLING LOG

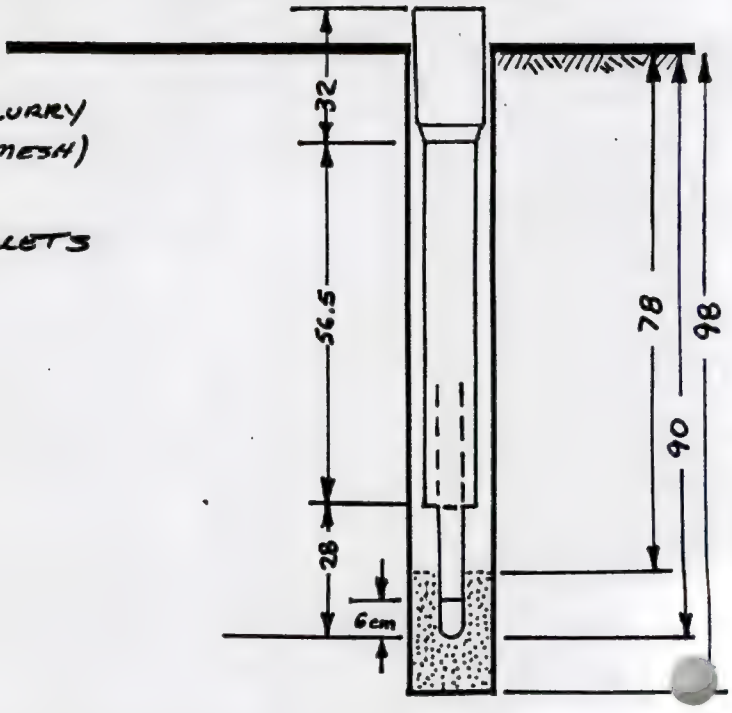
DEPTH INTERVAL			DESCRIPTION
0	to	36 cm	10YR4/3 SANDY LOAM, SLIGHTLY SILTY, 15% GRAVEL
36	to	46	10YR 4/4 AS ABOVE
46	to	48	10YR 3/3 SILT
48	to	58	2.5YR 7/6 MEDIUM SAND
58	to	74	7.5YR 4/6 Fe STAINED MED SAND, SOME Cu STAINED (GREEN) GRAINS, 3% GRAVEL
	to		
74	to	98	2.5YR 7/6 MED TO COARSE SAND/TAILINGS 5% GRAVEL
	to		

INSTALLATION: 07A16-90

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : #3 / BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH)
BOTTOM LYS/SCREEN : 90cm
TOP LYS/SCREEN : 84cm
BACKFILL TYPE/METHOD : ¼ BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 20

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07A16-40

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/18/90

COUNTY : SILVER BOW
LEGAL : NW¼, S22, T3N, R8W
DATE INSTALLED: 04/18/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING/JENNINGS

HOLE DEPTH : 49 cm
HOLE DIAMETER : 10 cm

DRILLING LOG

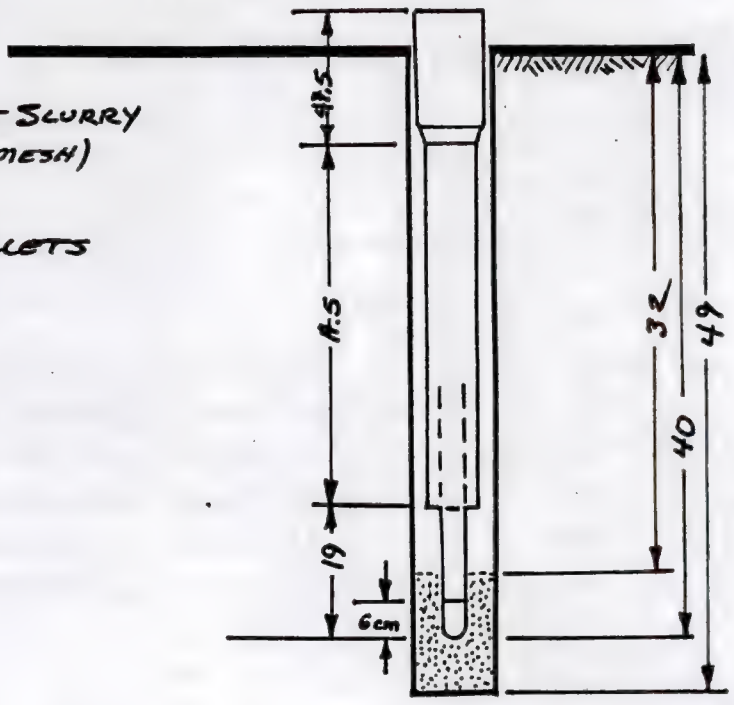
DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 07A16-90
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 07A16-40

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ±28cm/BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH)
BOTTOM LYS/SCREEN : 40cm
TOP LYS/SCREEN : 34cm
BACKFILL TYPE/METHOD : ¼ BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 21

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07C 17-150

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/18/90
COUNTY : SILVER BOW
LEGAL : NW1/4, S22, T3N, R8W
DATE INSTALLED: 04/18/90

DRILLING:

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS
HOLE DEPTH : 160
HOLE DIAMETER : 10cm

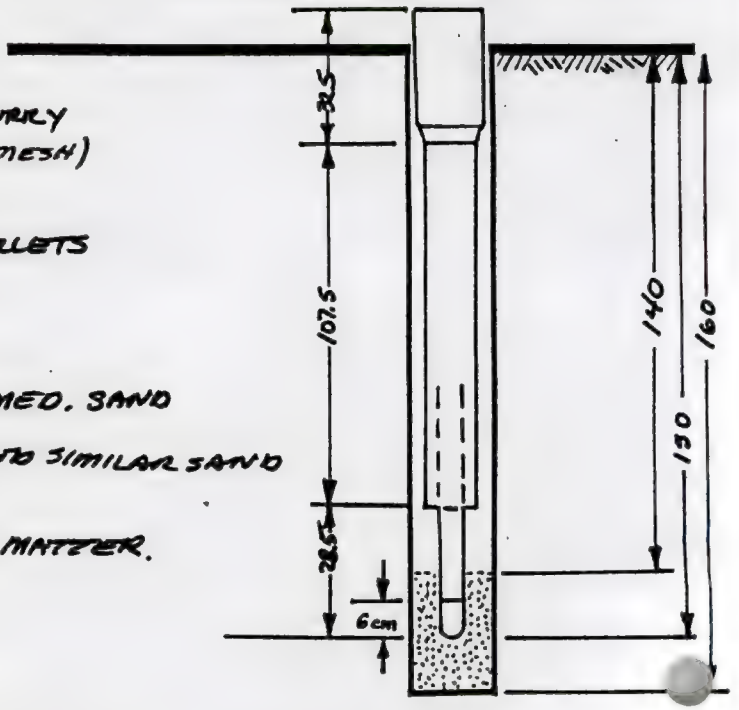
DRILLING LOG

DEPTH INTERVAL			DESCRIPTION
0	to	58 cm	10YR5/4 COARSE SAND w/15% GRAVEL. COLOR GRADES TO
"	to		10YR4/4 & GRAVEL TO 30% @ ± 40cm
58	to	60	10YR3/3 SILT LOAM, V. MIC., LITTLE SAND
60	to	68	10YR5/3 SLIGHTLY SILTY MED. SAND
68	to	80	10YR4/3 V. SILTY FINE SAND - GRADES TO SANDY SILT @ BASE
80	to	92	7.5YR4/4 FE STAINED MED TO COARSE SAND w/5% GRAVEL
92	to	103	10YR4/4 COARSE SAND w/OCC CU STAINED GRAIN
103	to	120	10YR3/2 MIC SILT, GRADES DOWNWARD TO SIMILAR [illegible] S. SATURATED.

INSTALLATION: 07C17-150 LOG CONT. BELOW

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : 135/BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH)
BOTTOM LYS/SCREEN : 150
TOP LYS/SCREEN : 144
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



LOG, CONT.

120-126 10YR4/1 MED TO FINE SILTY SAND
126-128 2.5YR4/6 STRONGLY FE STAINED MED. SAND
128-130 AS ABOVE w/ OCC LENS NONSTAINED SIMILAR SAND
130-150 5Y4/1 SANDY SILT & MED. SAND
150-160 7.5YR3/0 MIC SILT w/ORGANIC MATTER. SLIGHTLY SANDY IN PART

NOTES: LYSIMETER BODY # 22

07C17-90

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/19/90

COUNTY : SILVER BOW
LEGAL : NW1/4 S22 T3N, R8W
DATE INSTALLED: 04/19/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 98cm
HOLE DIAMETER : 10cm

DRILLING LOG

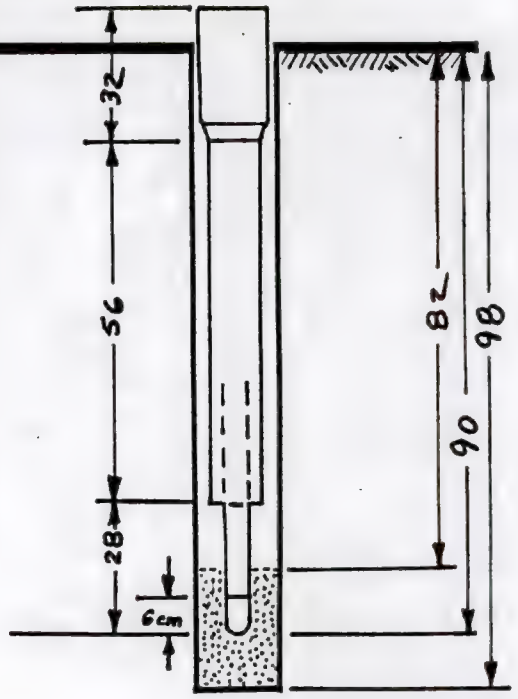
DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 07C17-150
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 07C17-90

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : 675cm BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 82cm
BOTTOM LYS/SCREEN : 90
TOP LYS/SCREEN : 84
BACKFILL TYPE/METHOD : 1/4 BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 23

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07-10

07C17-40

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/18/90

COUNTY : SILVER BOW
LEGAL : NW¼, S22, T3N, R8W
DATE INSTALLED: 04/18/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 48 cm
HOLE DIAMETER : 10 cm

DRILLING LOG

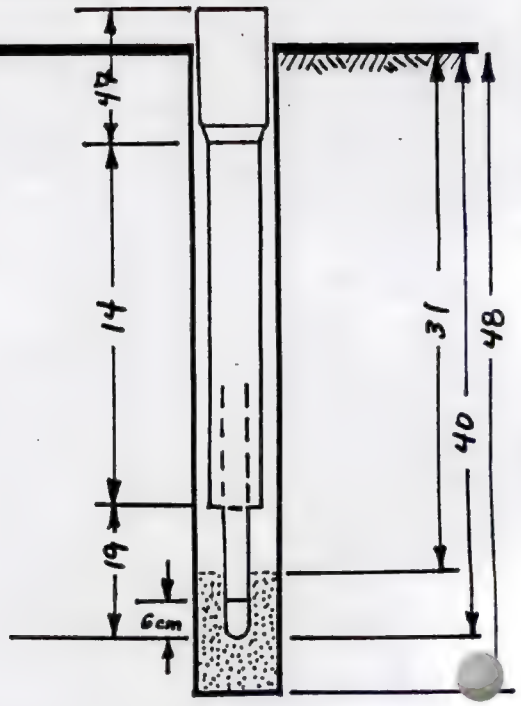
DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 07C17-150
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 07C17-40

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ≈25 BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 31
BOTTOM LYS/SCREEN : 40
TOP LYS/SCREEN : 34
BACKFILL TYPE/METHOD : 1/4 BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 24

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07I18-150

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/19/90

COUNTY : SILVER BOW
LEGAL : NW1/4, S22, T3N, R8W
DATE INSTALLED: 04/19/90

DRILLING:

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 160 cm
HOLE DIAMETER : 10 cm

DRILLING LOG

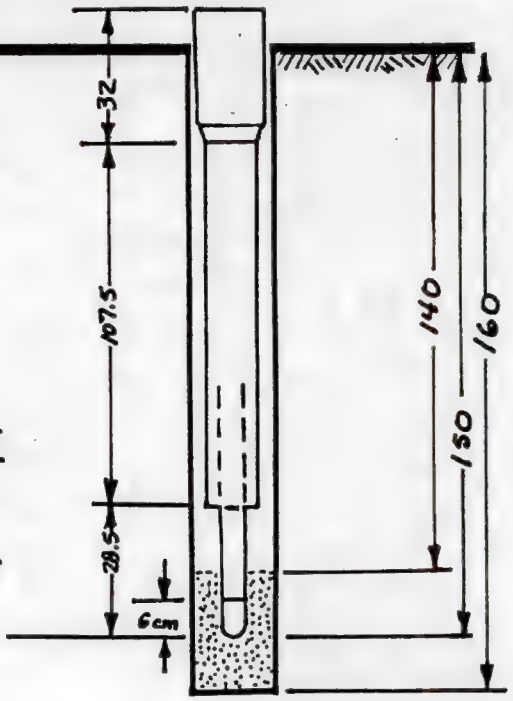
DEPTH INTERVAL			DESCRIPTION
0	to	15 cm	10YR 4/3 SLIGHTLY SILTY MED-COARSE SAND
15	to	33	10YR 4/6 SAND AS ABOVE
33	to	44	10YR 4/1 V. SILTY FINE TO V. FINE SAND
44	to	58	10YR 5/3 CLEAN WELL SORTED MED. SAND
58	to	70	10YR 4/6 Fe STAINED SAND AS ABOVE
70	to	74	10YR 3/3 SANDY MIC SILT
74	to	91	10YR 4/6 Fe STAINED, SLIGHTLY SILTY MED SAND
91	to	95	10YR 3/2 SANDY SILT W/ ABUND. ORGANIC DEBRIS

CONT. BELOW

INSTALLATION: 07I18-150

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ≈135cm/BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 140
BOTTOM LYS/SCREEN : 150 cm
TOP LYS/SCREEN : 144 cm
BACKFILL TYPE/METHOD : 1/4 BENTONITE PELLETS

INSTALLATION DIAGRAM



07I18 LOG CONT.

95-96 2.5YR 2.5/0 ORGANIC PEAT
96-103 5Y 5/1 CLAYEY MIC SILT W/ AMENDMENTS
103-142 7.5YR 3/0 CLAYEY MIC SILT W/ OLD FINE ROOTS ORGANIC DEBRIS & SOME AMENDMENTS - WET
142-154 NS SLIGHTLY SILTY MED. SAND - SAT.
154-156 5G 4/1 SLIGHTLY SANDY SILT W/ OLD FINE ROOTS
156-160 5Y 4/1 SILTY MED TO FINE SAND

NOTES: LYSIMETER BODY # 25

07/12

07I18-90

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/19/90

COUNTY : SILVER BOW
LEGAL : NW1/4, S22, T3N, R8W
DATE INSTALLED: 04/19/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 99 cm
HOLE DIAMETER : 10 cm

DRILLING LOG

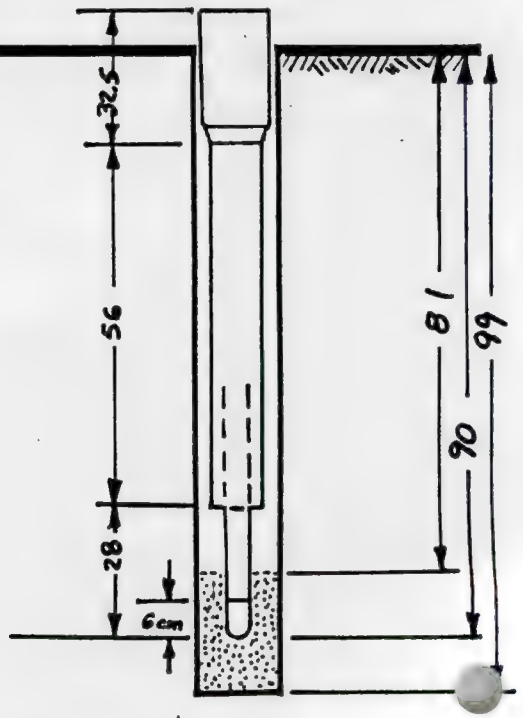
DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 07I18-150
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 07I18-90

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ~75cm / BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 81
BOTTOM LYS/SCREEN : 90
TOP LYS/SCREEN : 84
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 26

****

07I18-40

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/19/90

COUNTY : SILVER BOW
LEGAL : NW¼, S22, T3N, R8W
DATE INSTALLED: 04/19/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 47.5 cm
HOLE DIAMETER : 10 cm

DRILLING LOG

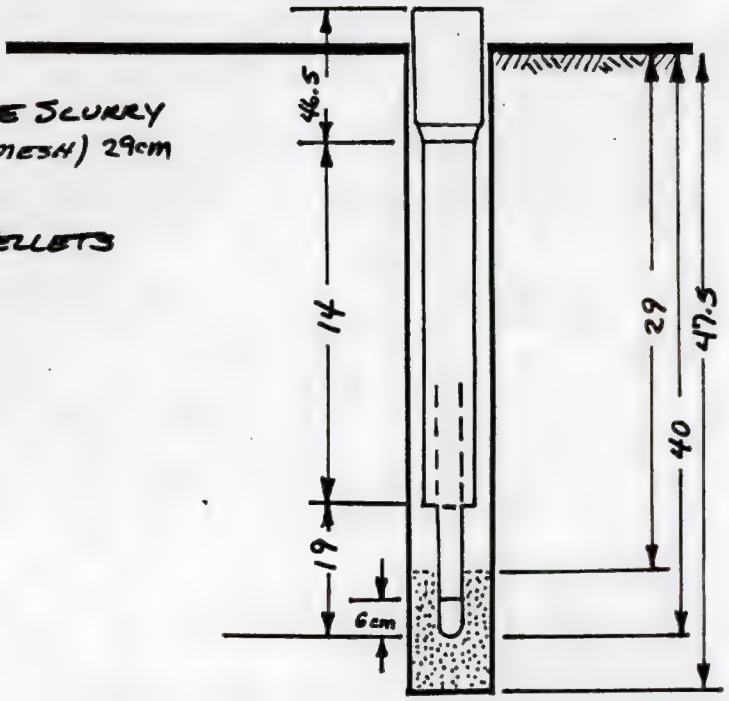
DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 07I18-150
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 07I18-40

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ~25cm/BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 29cm
BOTTOM LYS/SCREEN : 40 cm
TOP LYS/SCREEN : 34 cm
BACKFILL TYPE/METHOD : ¼" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY #27

****

21T13-90

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/16/90

COUNTY : SILVER BOW
LEGAL : NE1/4 SEC 22, T3N, R9W
DATE INSTALLED: 04/16/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 142cm
HOLE DIAMETER : 10cm

DRILLING LOG

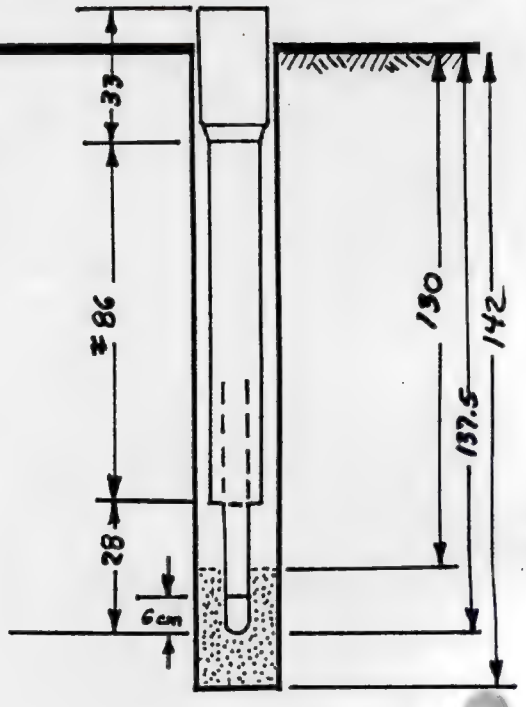
DEPTH INTERVAL			DESCRIPTION
0	to	40 cm	10YR 5/3 APPLIED SANDY LOAM TOPSOIL
40	to	86 cm	2.5YR 4/2 SILT TAILINGS
86	to	142	10YR 5/1 TO 10YR 4/1 LAYERED SILT TAILINGS & OLD ORGANIC MATTER
____	to	____	
____	to	____	
____	to	____	
____	to	____	
____	to	____	

INSTALLATION: 21T13-90

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ≈125 cm/ BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 130cm
BOTTOM LYS/SCREEN : 139.5 cm
TOP LYS/SCREEN : 131.5 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 2

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21/2

21T13-40

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/16/90

COUNTY : SILVER BOW
LEGAL : NE1/4, S 22, T 3 N, R 9 W
DATE INSTALLED: 04/16/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 93 cm
HOLE DIAMETER : 10 cm

DRILLING LOG

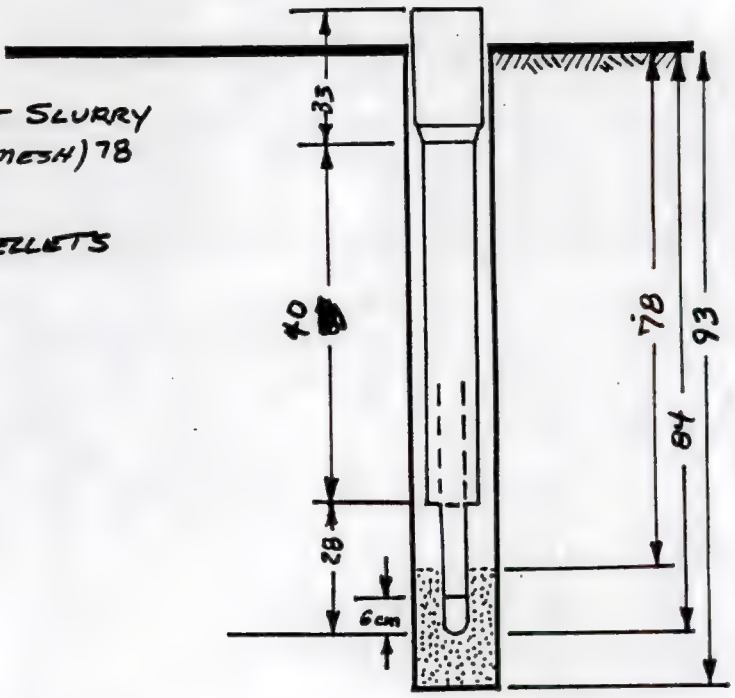
DEPTH INTERVAL			DESCRIPTION
0	to	44 cm	10YR 5/3 APPLIED SANDY LOAM TOPSOIL
44	to	90	2.5YR 4/2 SILT / VF SAND TAILINGS
90	to	93	10YR 4/1 ORGANIC SOIL & MIXED TAILINGS
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 21T13-40

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ≈74 cm / BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 78
BOTTOM LYS/SCREEN : 84 cm
TOP LYS/SCREEN : 78 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY #3

****

21I 14-150

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/16/90

COUNTY : Silver Bow
LEGAL : NE1/4 S22 T 3N, R9W
DATE INSTALLED: 04/16/90

DRILLING:

****

METHOD : Bucket Auger
DRILLER : Goering / Jennings

HOLE DEPTH : 157cm
HOLE DIAMETER : 10 cm

DRILLING LOG

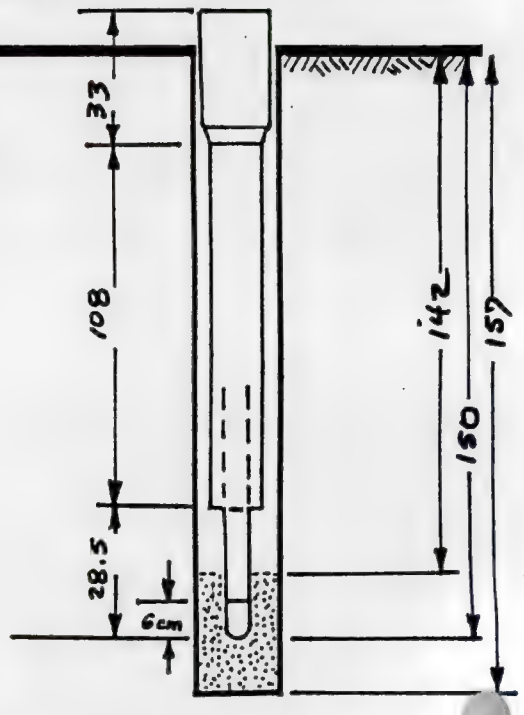
DEPTH INTERVAL			DESCRIPTION
0	to	20 cm	2.5YR 5/2 SILT TAILINGS MIXED W/ 5Y5/1 TAILINGS
20	to	70	10YR5/6 SILTY TAILINGS, SOME $CaCO_3$ & OLD ORGANIC MATTER
70	to	113	5Y 5/1 "MIXED" TAILINGS, GRADES TO PURE TAILINGS
113	to	157	10 YR 4/1 CLAY LOAM, SLIGHTLY CALC.
	to		
	to		
	to		

INSTALLATION: 21I 14-150

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ±135 cm/ BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH)/142cm
BOTTOM LYS/SCREEN : 150 cm
TOP LYS/SCREEN : 144 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 4

****

21I 14-90

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/17/90

COUNTY : SILVER BOW
LEGAL : NE¼ S22 T3N, R9W
DATE INSTALLED: 04/12/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 97.5cm
HOLE DIAMETER : 10cm

DRILLING LOG

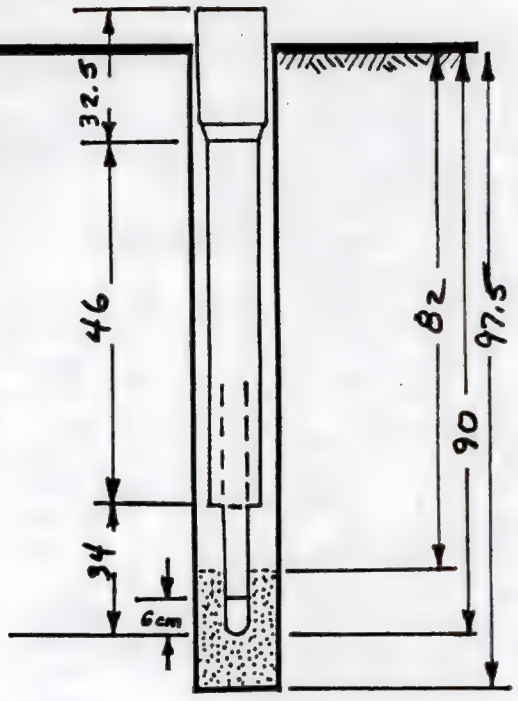
DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 21I 14-150
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 21I 14-90

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ≈75cm/ BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 82cm
BOTTOM LYS/SCREEN : 90 cm
TOP LYS/SCREEN : 84 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 1

****

21I 14-40

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/17/90

COUNTY : SILVER BOW
LEGAL : NE1/4 S22 T3N, R9W
DATE INSTALLED: 04/17/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 47.5cm
HOLE DIAMETER : 10cm

DRILLING LOG

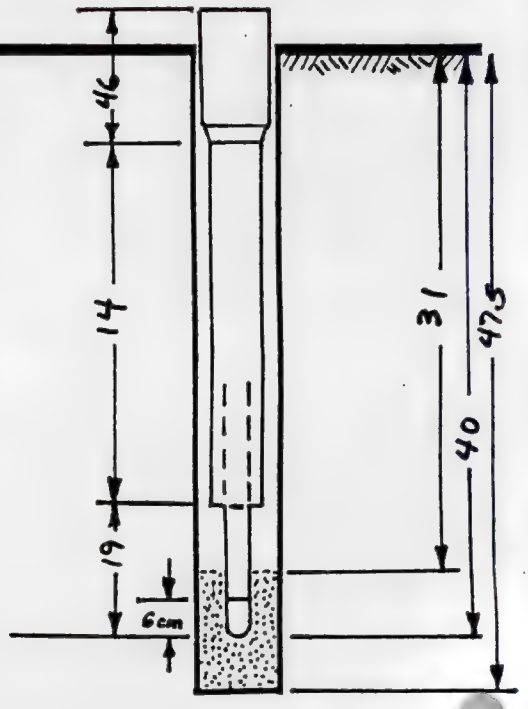
DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 21I 14-150
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 21I 14-40

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ± 25 cm/ BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 31cm
BOTTOM LYS/SCREEN : 40 cm
TOP LYS/SCREEN : 34 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 6

****

21A 15-90

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/17/90

COUNTY : SILVER BOW
LEGAL : NE 1/4 S22 T3N, R9W
DATE INSTALLED: 04/17/90

DRILLING:

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 97.5
HOLE DIAMETER : 10cm

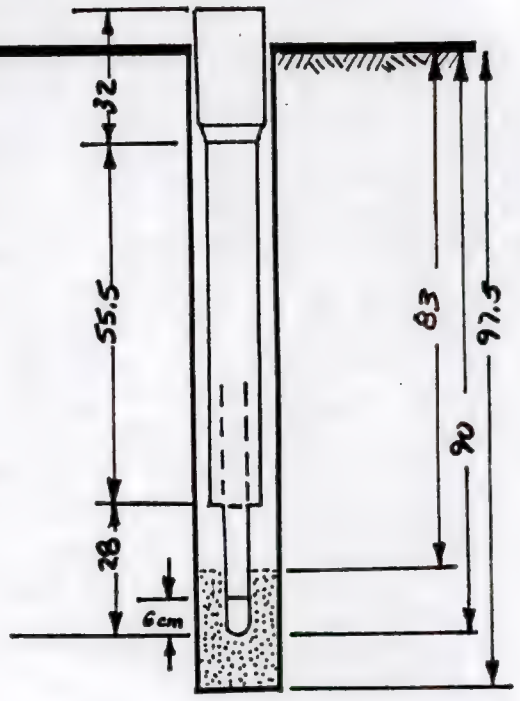
DRILLING LOG

DEPTH INTERVAL			DESCRIPTION
0	to	20 cm	N5/, 5Y4/1 & 7.5YR 5/6 MIXED SANDY SILT TAILINGS
20	to	26	7.5YR 5/6 SANDY SILT TAILINGS
26	to	38	5Y 4/1 SILTY TAILINGS W/ OLD SEDGE ROOTS
38	to	56	10YR 4/4 SILT TAILINGS W/ SEDGE ROOTS
56	to	64	10YR 4/2 SILT TAILINGS W/ ABUND. FINE-MED OLD ROOTS
64	to	97.5	10YR 4/1 TO 5Y 4/1 SILT TAILINGS 10-15% ORGAN
	to		
	to		

INSTALLATION: 21A 15-90

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ~78 cm/ BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 83cm
BOTTOM LYS/SCREEN : 90 cm
TOP LYS/SCREEN : 84 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 7

21A15-40

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/17/90

COUNTY : SILVER BOW
LEGAL : NE1/4 SEC 22 T 3N R 9W
DATE INSTALLED: 04/17/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 48cm
HOLE DIAMETER : 10cm

DRILLING LOG

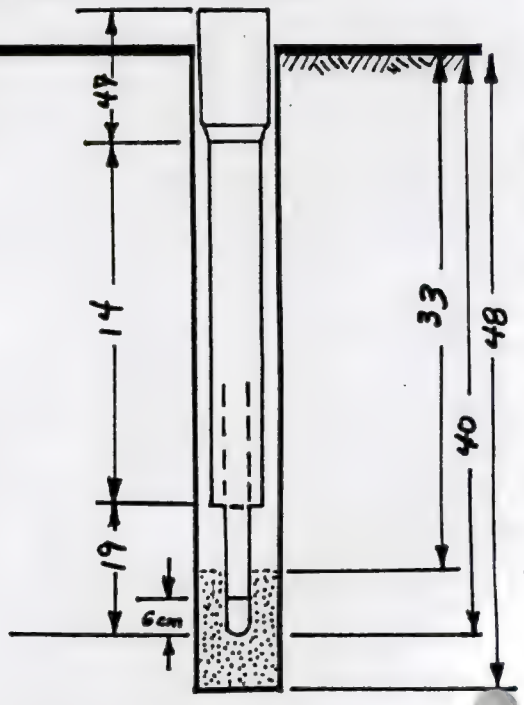
DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 21A15-90
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 21A15-40

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : cm/BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 33cm
BOTTOM LYS/SCREEN : 40 cm
TOP LYS/SCREEN : 34 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 8

****

21D17-150

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/17/90

COUNTY : SILVER BOW
LEGAL : NE1/4 S 22 T 3N, R 9W
DATE INSTALLED: 04/17/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 160cm
HOLE DIAMETER : 10cm

DRILLING LOG

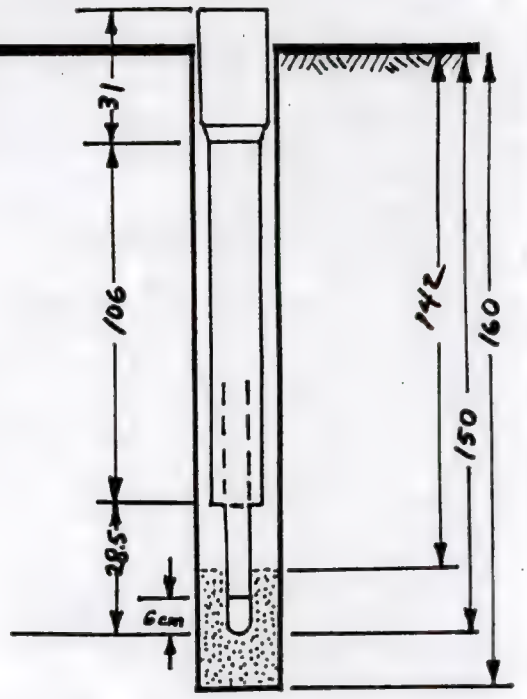
DEPTH INTERVAL			DESCRIPTION
0	to	21 cm	10YR 4/4 SANDY SILT TAILINGS
21	to	≈35	10YR 3/1 SILTY LOAM SOIL W/ROOTS MIXED W/ TAILINGS
≈35	to	≈40	7.5YR 5/6 MIXED TAILINGS
≈40	to	63	7.5YR 4/1 MIXED GLEY SILT W/SOME COARSE SAND
	to		SILT TAILINGS
63	to	128	AS ABOVE, NO SAND
128	to	160	10YR 3/1 CLAY LOAM, SLIGHTLY CALC IN PART,
	to		SANDY IN PART

INSTALLATION: 21D17-150

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ≈135 cm/ BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 142
BOTTOM LYS/SCREEN : 150 cm
TOP LYS/SCREEN : 144 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY #9

****

21D17-90

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/17/90

COUNTY : SILVER BOW
LEGAL : NE1/4 S22 T3N, R9W
DATE INSTALLED: 04/17/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 97.5 cm
HOLE DIAMETER : 10 cm

DRILLING LOG

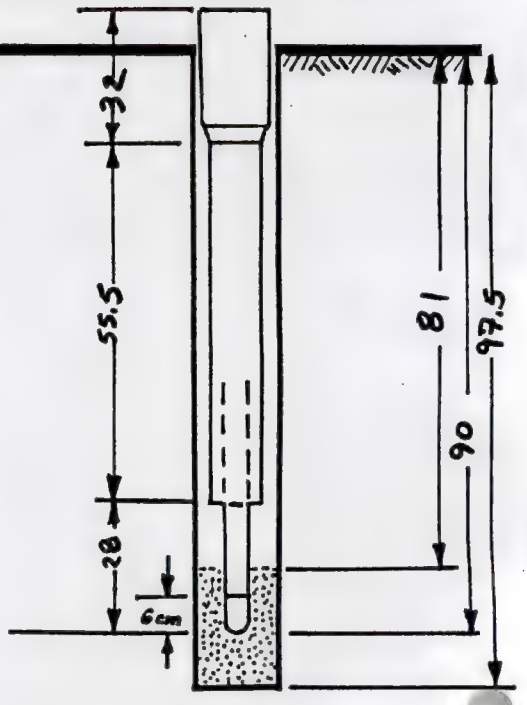
DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 21D17-150
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 21D17-90

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : 75 cm/ BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 81cm
BOTTOM LYS/SCREEN : 90 cm
TOP LYS/SCREEN : 84 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY #10

****

21D17-40

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/17/90

COUNTY : SILVER BOW
LEGAL : NE1/4 S22 T3 N, R9W
DATE INSTALLED: 04/17/90

DRILLING:

METHOD : BUCKET AUGER
DRILLER : GOEDING / JENNINGS

HOLE DEPTH : 47.5cm
HOLE DIAMETER : 10cm

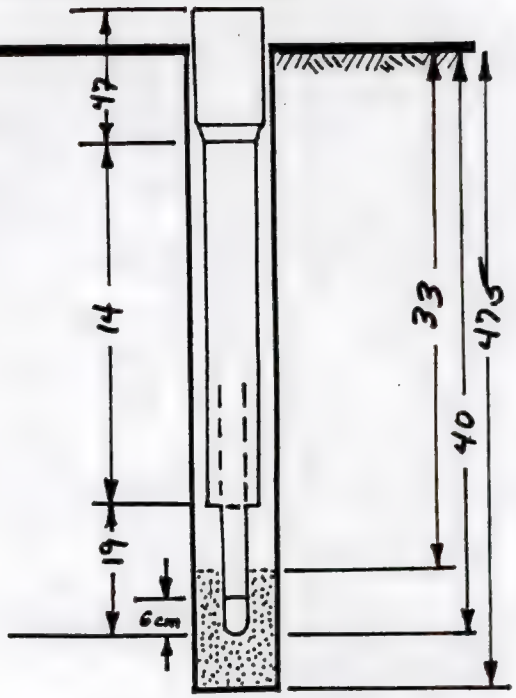
DRILLING LOG

DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 21D17-150
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 21D17-40

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : cm/ BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 33cm
BOTTOM LYS/SCREEN : 40 cm
TOP LYS/SCREEN : 34 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 11

21/11

21C 18-150

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/17/90

COUNTY : SILVER BOW
LEGAL : NE1/4 S22 T3N, R9W
DATE INSTALLED: 04/17/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 160cm
HOLE DIAMETER : 10cm

DRILLING LOG

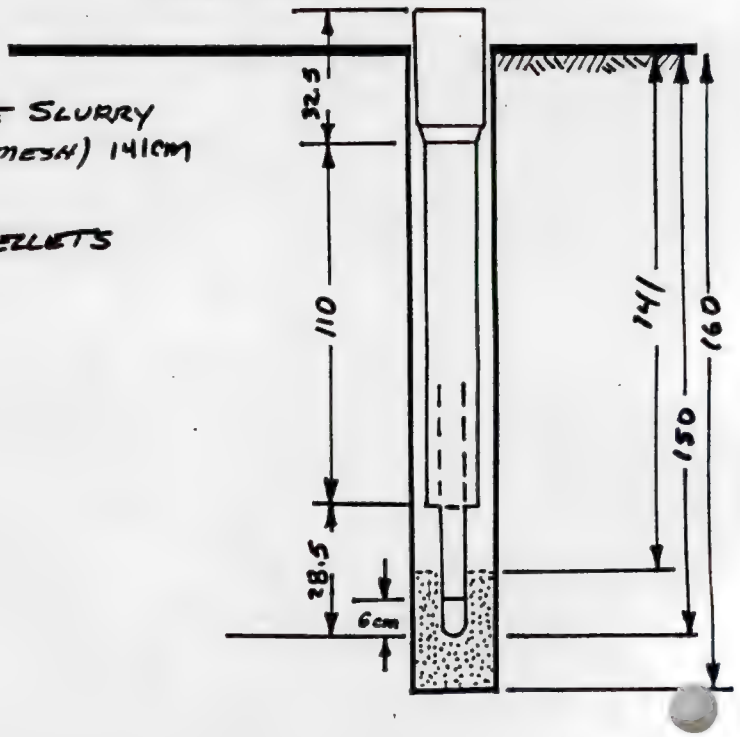
DEPTH INTERVAL			DESCRIPTION
0	to	60 cm	SILTY TAILINGS: VARIES 5Y6/1 TO FE STAINED 7.5YR4/
60	to	78	2.5YR 4/2 SILT TAILINGS, SOME INTERBEDDED ORGANIC
	to		MATERIAL (VERY THIN)
78	to	92	10YR 3/1 SILT LOAM (BURIED "A"?)
92	to	160	10YR 3/3 CLAY LOAM W/ OLD ORGANIC MATTER
	to		NON CALC, SLIGHT MOTTLING W/ OCC POCKETS
	to		OF STRONG FE MOTTLING
	to		

INSTALLATION: 21C 18-150

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ~135cm/ BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 141CM
BOTTOM LYS/SCREEN : 150 cm
TOP LYS/SCREEN : 144 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 12

****

21/12

21C 18-90

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/17/90

COUNTY : SILVER BOW
LEGAL : NE1/4 S22 T3N, R9W
DATE INSTALLED: 04/17/90

DRILLING:

METHOD : BUCKET AUGER
DRILLER : GOERING/JENNINGS

HOLE DEPTH : 98cm
HOLE DIAMETER : 10cm

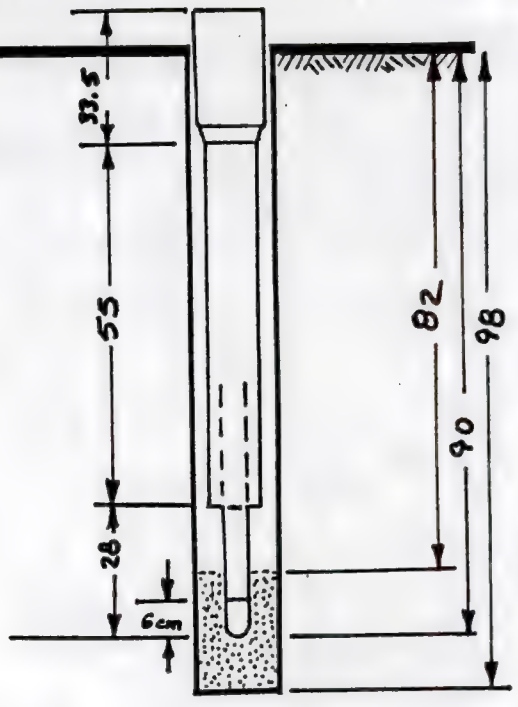
DRILLING LOG

DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 21C 18-150
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 21C 18-90

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ≈75cm/BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 82cm
BOTTOM LYS/SCREEN : 90 cm
TOP LYS/SCREEN : 84 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY #13

21/13

21C18-40

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/17/90

COUNTY : SILVER BOW
LEGAL : NE 1/4 S22 T3 N, R9W
DATE INSTALLED: 04/17/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 50cm
HOLE DIAMETER : 10cm

DRILLING LOG

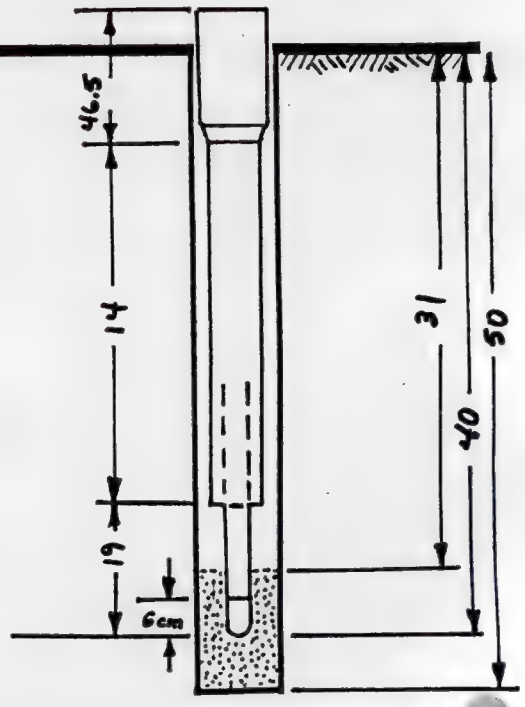
DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 21C18-150
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 21C18-40

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ±25 cm/ BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 31 cm
BOTTOM LYS/SCREEN : 40 cm
TOP LYS/SCREEN : 34 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY #14

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27 X 13 -90

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/25/90

COUNTY : DEER LODGE
LEGAL : SE1/4, S35, T4N, R10W
DATE INSTALLED: 04/25/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 97 cm
HOLE DIAMETER : 10 cm

DRILLING LOG

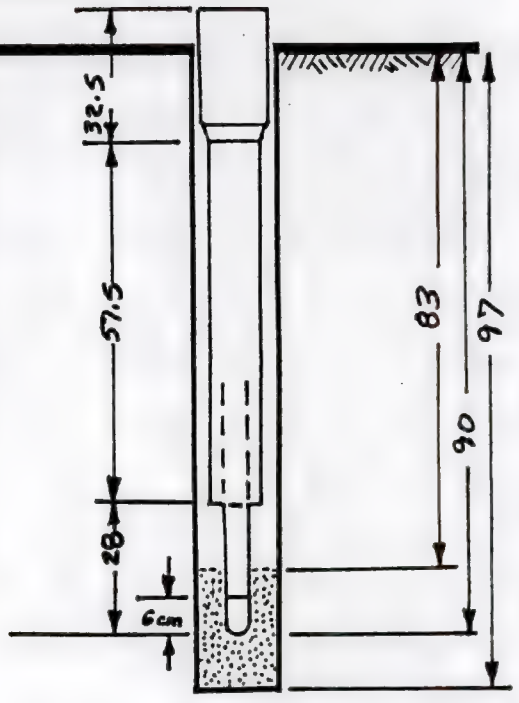
DEPTH INTERVAL			DESCRIPTION
0	to	36 cm	10YR 4/4 SANDY LOAM W/ ABUND. ROOTS
36	to	56	10YR 5/4 COARSE SAND TO 8mm, MED SORTING, LITTLE SILT
56	to	97	7.5YR 6/2 MED-COARSE SAND W/ COBBLE TO 20mm TO 85cm, COBBLE TO 60mm + BELOW 85cm.
	to		
	to		
	to		
	to		
	to		

INSTALLATION:

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ±75 cm/ BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH)/83cm
BOTTOM LYS/SCREEN : 90 cm
TOP LYS/SCREEN : 84 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY #66

****

27 X 13 -40

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04 / 25 / 90

COUNTY : DEER LODGE
LEGAL : SE¼, S35, T4N, R10W
DATE INSTALLED: 04 / 25 / 90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH :
HOLE DIAMETER : 10cm

DRILLING LOG

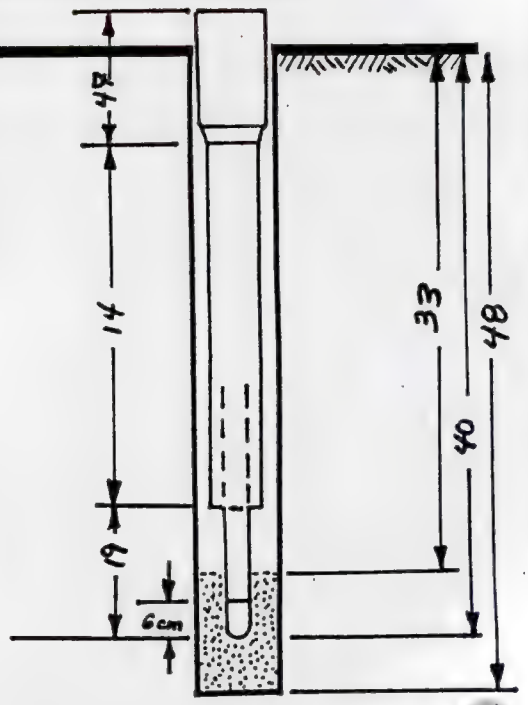
DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 27X13-90
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION:

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ~25 cm/ BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 33cm
BOTTOM LYS/SCREEN : 40 cm
TOP LYS/SCREEN : 34 cm
BACKFILL TYPE/METHOD : ¼" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY #65

****

27C 14-150

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/20/90

COUNTY : DEER LODGE
LEGAL : SE1/4, S35, T4N, R10W
DATE INSTALLED: 04/25/90

DRILLING:

METHOD : POST HOLE DIGGER / BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 157cm
HOLE DIAMETER : 30cm +

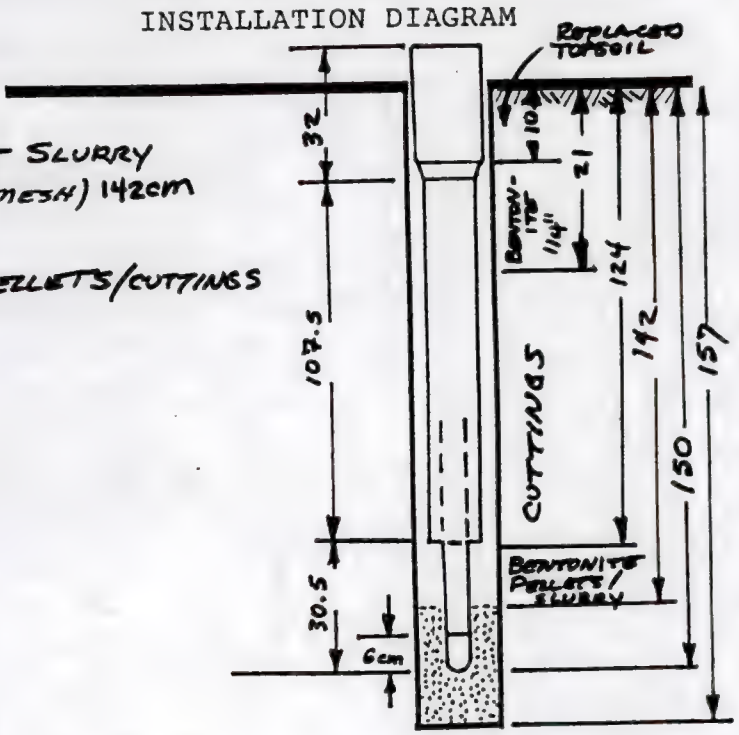
DRILLING LOG

DEPTH INTERVAL			DESCRIPTION
0	to	38 cm	10YR 3/2 SANDY LOAM W/ ABUND. ROOTS
38	to	49	10YR 4/4 COARSE SAND, SUBROUNDED, POORLY SORTED
	to		W/ SILTY MATRIX
49	to	60	10YR 5/3 COARSE SAND, SILT DECREASES W/ DEPTH
60	to	66	10YR 3/1 SILT W/ V.F. SAND
66	to	89	10YR 5/2 MED. SAND, SUBROUNDED W/ GRAVEL
89	to	97	5YR 4/3 COARSE SAND W/ 20% GRAVEL / COBBLES
97	to	157	AS ABOVE, COARSE FRAG. TO 60%

INSTALLATION:

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : 138 cm/ BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 142cm
BOTTOM LYS/SCREEN : 150 cm
TOP LYS/SCREEN : 144 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS/CUTTINGS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 67

27C14-90

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/23/90

COUNTY : DEER LODGE
LEGAL : SE1/4, S35, T4N, R10W
DATE INSTALLED: 04/23/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 98 cm
HOLE DIAMETER : 10 cm

DRILLING LOG

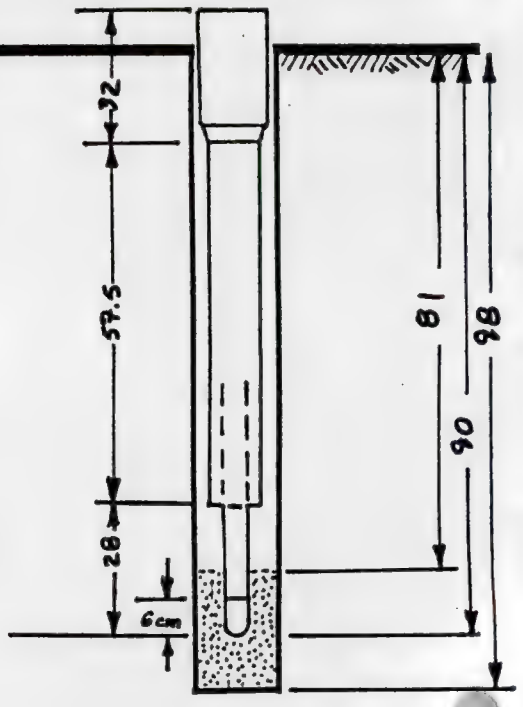
DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 27C14-150
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 27C14-90

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : 79 cm/ BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 81cm
BOTTOM LYS/SCREEN : 90 cm
TOP LYS/SCREEN : 84 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY #48

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27C14-40

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04 / 23 / 90

COUNTY : DEER LODGE
LEGAL : SE1/4, S35, T4N, R10W
DATE INSTALLED: 04 / 23 / 90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 49 cm
HOLE DIAMETER : 10 cm

DRILLING LOG

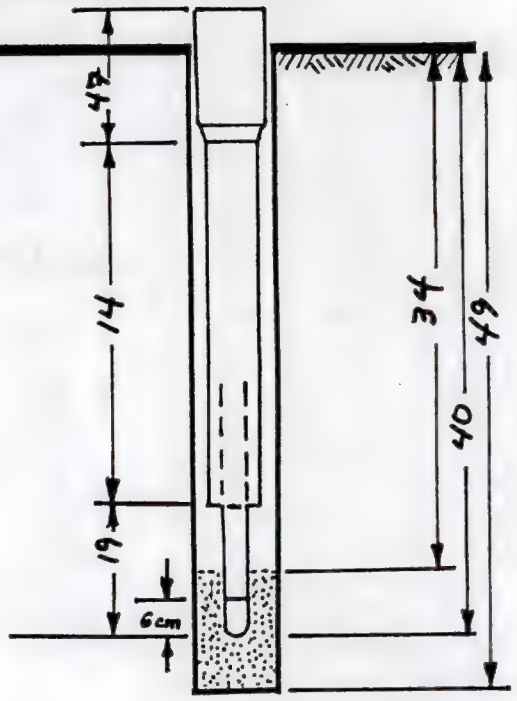
DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 27C14-150
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 27C14-40

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : 28 cm/ BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 34cm
BOTTOM LYS/SCREEN : 40 cm
TOP LYS/SCREEN : 34 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 49

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27/6

27D16-150

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/25/90 COMPLETED

COUNTY : DEER LODGE
LEGAL : SE1/4, S35, T4N, R10W
DATE INSTALLED: 04/26/90

DRILLING:

METHOD : POST HOLE DIGGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 153 cm
HOLE DIAMETER : 35 cm

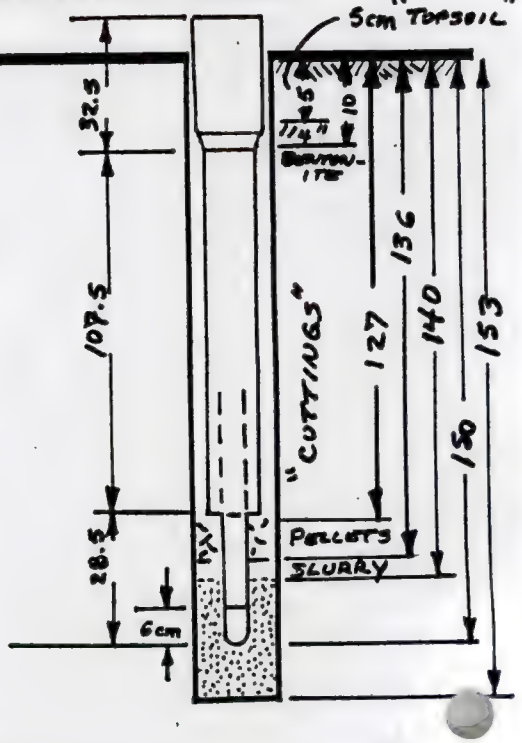
DRILLING LOG

DEPTH INTERVAL			DESCRIPTION
0	to	56 cm	10YR 4/1 MIXED SANDY LOAM
56	to	64	10YR 5/1 MIXED SANDY LOAM W/ GRAVEL
64	to	122	10YR 5/2 V. GRAVELLY SAND AND COBBLES
	to		Fe STAIN @ 95cm
122	to	153	7.5YR 4/2 BKR. SANDY LOAM
	to		60% COARSE FRAG. (GRAVEL TO BOULDER)
	to		
	to		

INSTALLATION: 27D16-150

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : #136/BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 140
BOTTOM LYS/SCREEN : 150cm
TOP LYS/SCREEN : 144 cm
BACKFILL TYPE/METHOD : CUTTINGS/4" BENTONITE

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY #68

27/7

27D16-90

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/20/90

COUNTY : DEER LODGE
LEGAL : SE¼, S35, T4N, R10W
DATE INSTALLED: 04/20/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 97cm
HOLE DIAMETER : 10cm

DRILLING LOG

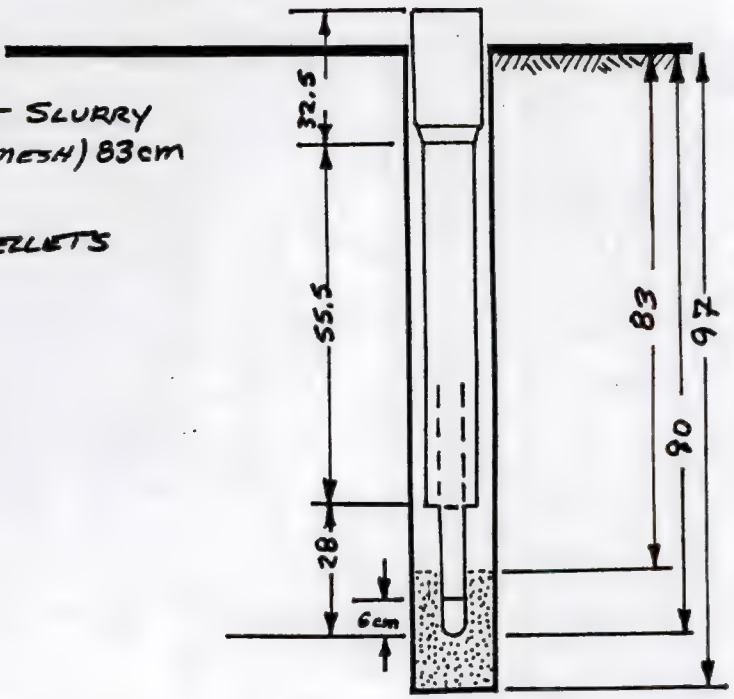
DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 27D16-150
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 27D16-90

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ≈28 cm/ BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 83cm
BOTTOM LYS/SCREEN : 90 cm
TOP LYS/SCREEN : 84 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 47

****

27D16-40

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:
****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/20/90

COUNTY : DEER LODGE
LEGAL : SE1/4, S33, T4N, R10W
DATE INSTALLED: 04/20/90

DRILLING:
****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : _____
HOLE DIAMETER : 10 cm

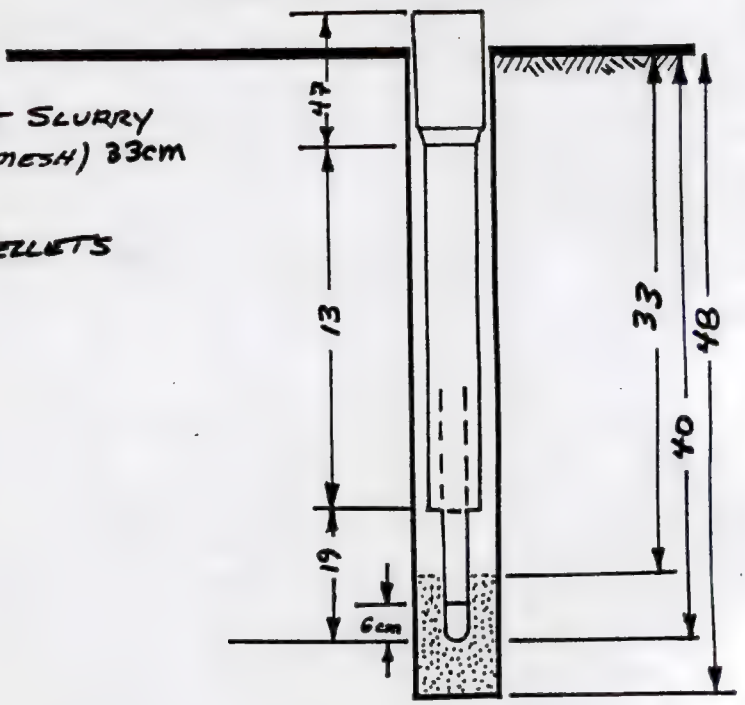
DRILLING LOG

DEPTH INTERVAL	DESCRIPTION
0 to ___ cm	SEE 27D16-150
___ to ___	
___ to ___	
___ to ___	
___ to ___	
___ to ___	
___ to ___	
___ to ___	

INSTALLATION: 27D16-40
****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS : _____
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ± 28 cm/ BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 33cm
BOTTOM LYS/SCREEN : 40 cm
TOP LYS/SCREEN : 34 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 46
****

27/9

27A17-90

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:
****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/20/90

COUNTY : DEER LODGE
LEGAL : SE1/4, S35, T4N, R10W
DATE INSTALLED: 04/20/90

DRILLING:
****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 97cm
HOLE DIAMETER : 10cm

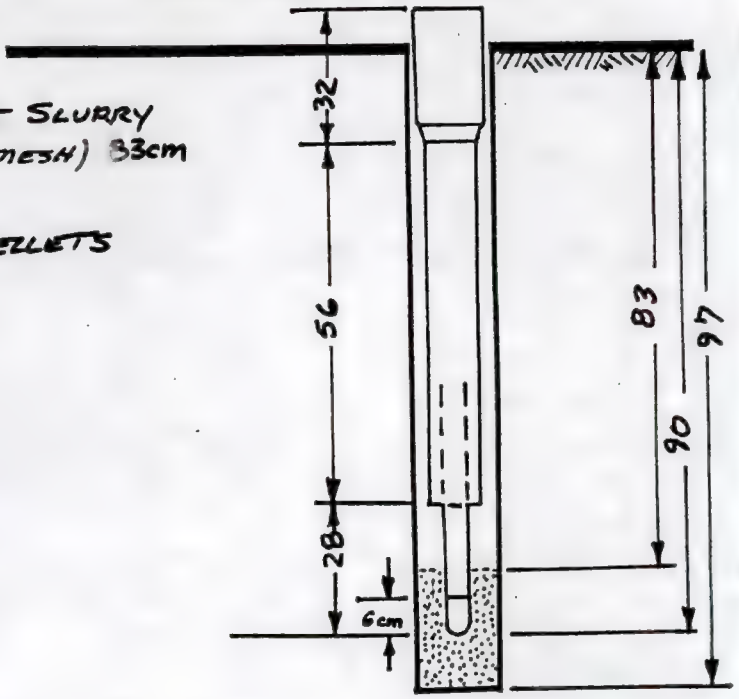
DRILLING LOG

DEPTH INTERVAL			DESCRIPTION
0	to	27 cm	10YR 4/2 SANDY LOAM
27	to	46	10YR 5/3 COARSE SAND, SLIGHTLY SILTY W/
	to		THIN LAYERS 10YR 4/2 SANDY LOAM. MOD. FINE ROOTS
46	to	56	10YR 3/3 SANDY LOAM
56	to	68	10YR 5/3 SLIGHTLY SILTY MED. SAND
68	to	97	10YR 5/4 SILTY SAND & GRAVEL. 15% COARSE FRAG./
	to		COBBLE
	to		

INSTALLATION:
****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : 27B cm/ BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 83cm
BOTTOM LYS/SCREEN : 90 cm
TOP LYS/SCREEN : 84 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 44
****

27/10

27A17-40

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:
****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/20/90

COUNTY : DEER LODGE
LEGAL : SE1/4, SEC 5, T4N, R10W
DATE INSTALLED: 04/20/90

DRILLING:
****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 52cm
HOLE DIAMETER : 10cm

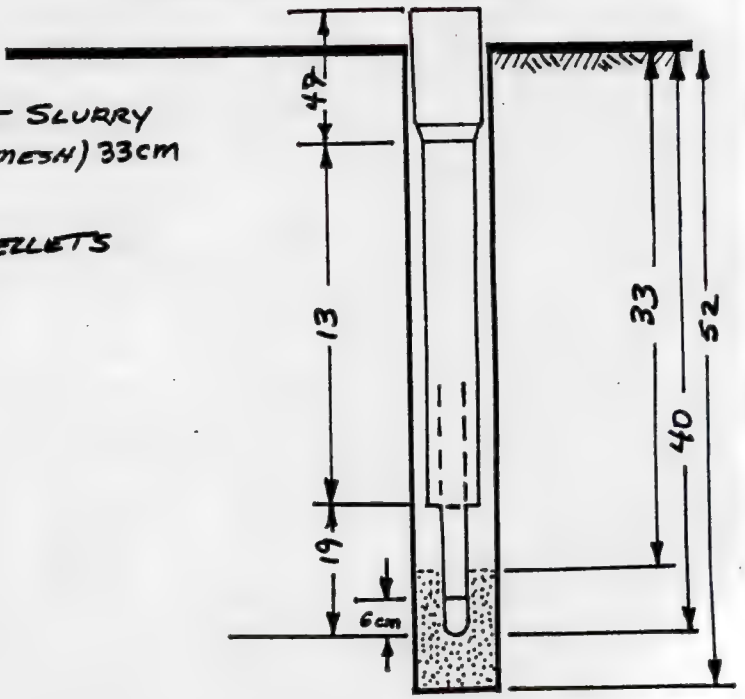
DRILLING LOG

DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 27A17-90
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION:
****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : cm/ BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 33cm
BOTTOM LYS/SCREEN : 34 cm
TOP LYS/SCREEN : 40 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 45
****

33A 07-90

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/25/90

COUNTY : DEER LODGE
LEGAL : NE1/4 S14 T 4 N, R 10W
DATE INSTALLED: 04/25/90

DRILLING:

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 97cm
HOLE DIAMETER : 10cm

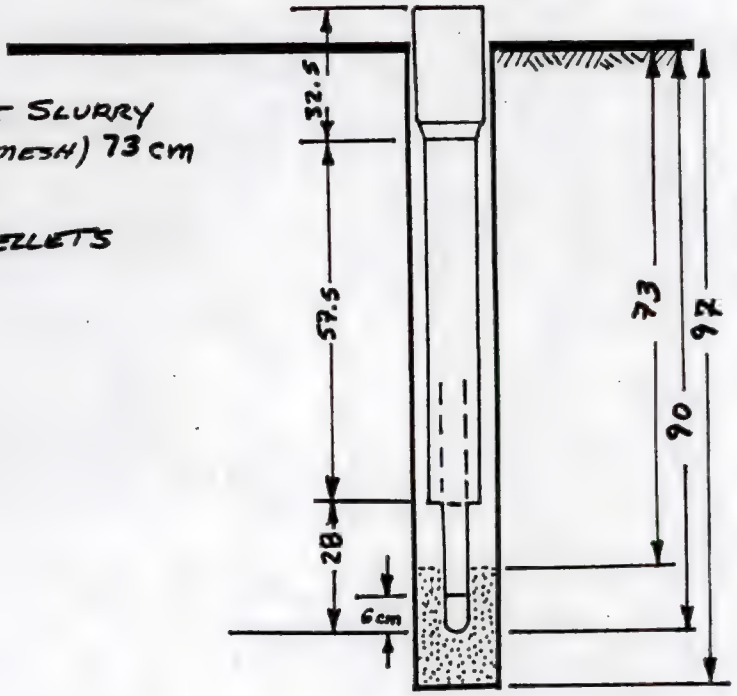
DRILLING LOG

DEPTH INTERVAL			DESCRIPTION
0	to	31 cm	10YR4/6 SILTY FINE SAND TAILINGS W/ AMENDMENTS
31	to	35	10YR4/6 SILTY COARSE SAND W/ 5% GRAVEL W/ MIXED TAILINGS
	to		AS ABOVE.
35	to	54	10YR 3/2 SILT LOAM W/ ABUND. OLD ROOTS. VIOLENTLY CALC@ 5
54	to	78	10YR 4/2 CLAY LOAM (Bk) VIOLENTLY CALC
78	to	97	10YR 6/3 CLAY LOAM, VIOLENTLY CALC.
	to		GRADES TO 10YR 6/3 SILT LOAM @ 85cm
	to		

INSTALLATION: 33A07-90

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ≈68 cm/ BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 73 cm
BOTTOM LYS/SCREEN : 90 cm
TOP LYS/SCREEN : 84 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 62

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33A07-40

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/25/90

COUNTY : DEER LODGE
LEGAL : NE1/4 S14 T 4N, R 10W
DATE INSTALLED: 04/25/90

DRILLING:

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 48cm
HOLE DIAMETER : 10cm

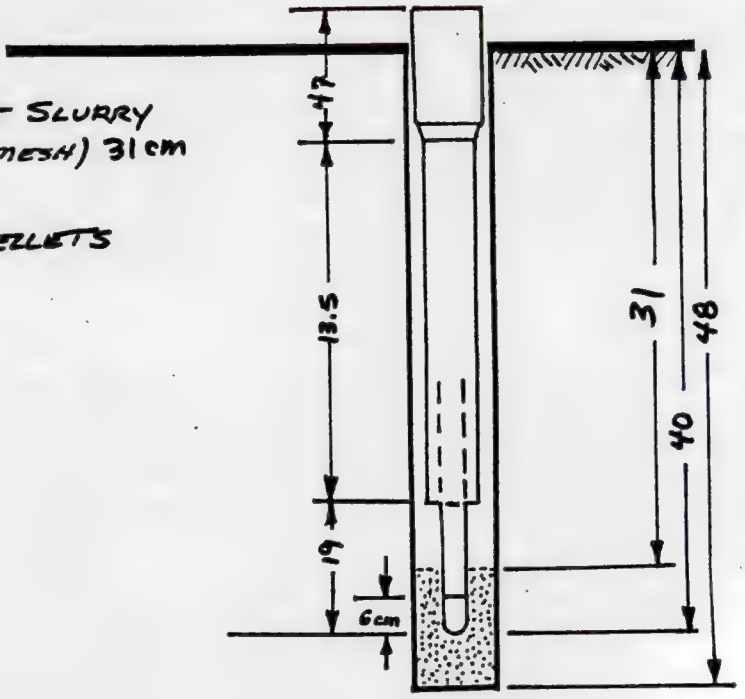
DRILLING LOG

DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 33A07-90
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 33A07-40

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ~25cm BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 31cm
BOTTOM LYS/SCREEN : 40 cm
TOP LYS/SCREEN : 34 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY #63

55/3

33D08-150

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:
****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/25/90

COUNTY : DEER LODGE
LEGAL : NE 1/4 S14 T 4 N, R 10 W
DATE INSTALLED: 04/25/90

DRILLING:
****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 158cm
HOLE DIAMETER : 10cm

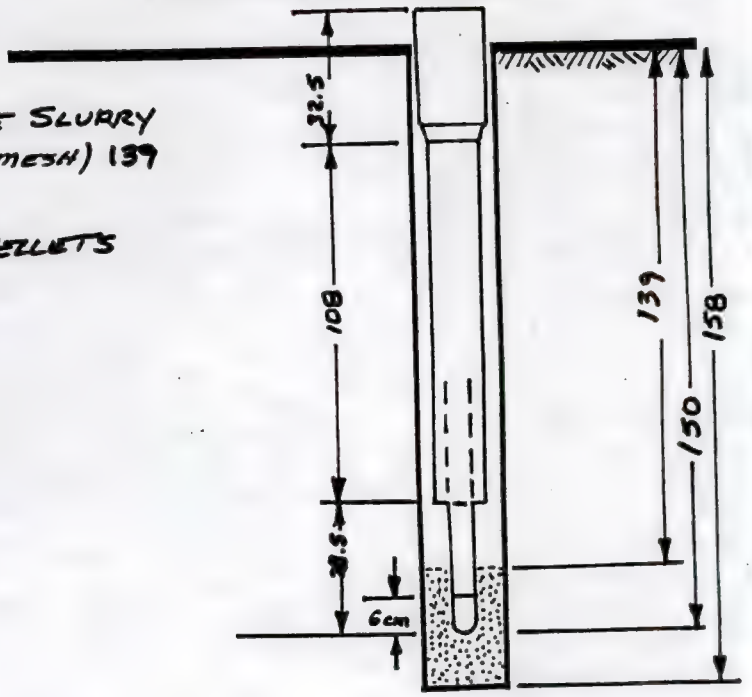
DRILLING LOG

DEPTH INTERVAL			DESCRIPTION
0	to	26 cm	10YR 4/3 SILTY FINE SAND TAILINGS w/ AMENDMENTS
26	to	35	10YR 3/1 SILT LOAM, VERY CALC, MIXED
35	to	105	10YR 4/1 CLAY LOAM, VIOLENTLY CALC, DAMP @ 70cm
	to		MOD. CALC @ 93cm
105	to	118	AS ABOVE, SLIGHTLY CALC
118	to	137	10YR 4/2 SANDY CLAY LOAM w/ COBBLES, 25-30% COARSE FRAG
	to		SLIGHTLY TO MOD. CALC
137	to	158	7.5YR 3/2 SILTY COARSE SAND w/ GRAVEL & COBBLES. SATURATED @ 156cm.

INSTALLATION: 33D08-150
****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : 32 cm / BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 139
BOTTOM LYS/SCREEN : 150 cm
TOP LYS/SCREEN : 144 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 59
****

33D08-90

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:
****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/25/90

COUNTY : DEER LODGE
LEGAL : NE1/4 S14 T 4N, R 10W
DATE INSTALLED: 04/25/90

DRILLING:
****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 98cm
HOLE DIAMETER : 10cm

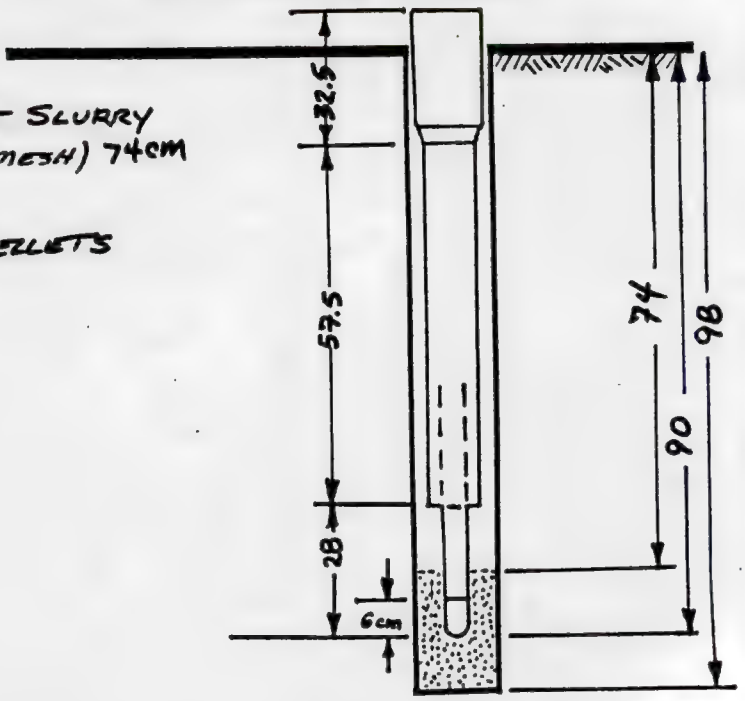
DRILLING LOG

DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 33D08-150
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 33D08-90
****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : 65cm/ BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 74cm
BOTTOM LYS/SCREEN : 90 cm
TOP LYS/SCREEN : 84 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY #60
****

33D08-40

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:
****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/25/90

COUNTY : DEER LODGE
LEGAL : NE1/4 S14 T4N, R10W
DATE INSTALLED: 04/25/90

DRILLING:
****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 48 cm
HOLE DIAMETER : 10 cm

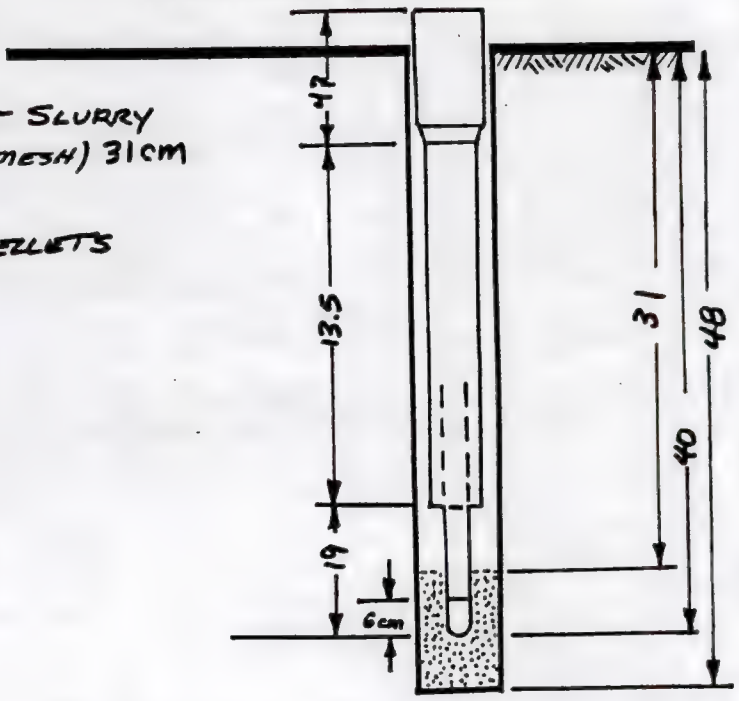
DRILLING LOG

DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 33D08-150
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 33D08-40
****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : 25cm BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 31cm
BOTTOM LYS/SCREEN : 40 cm
TOP LYS/SCREEN : 34 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY #61
****

33/6

33T09-90

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/24/90

COUNTY : DEER LODGE
LEGAL : NE 1/4 S14 T4N, R10W
DATE INSTALLED: 04/24/90

DRILLING:

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 134 cm
HOLE DIAMETER : 10 cm

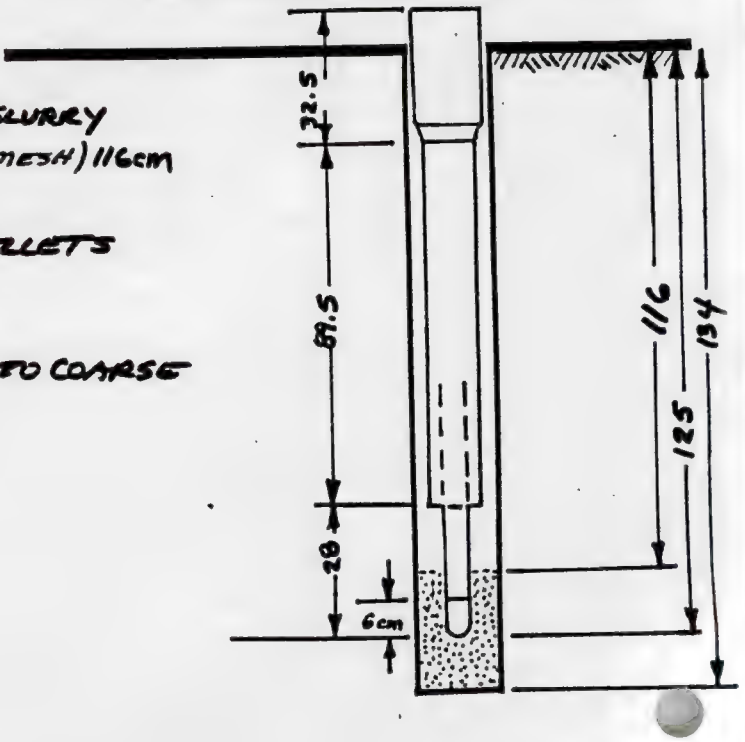
DRILLING LOG

DEPTH INTERVAL			DESCRIPTION
0	to	35 cm	10YR5/3 APPLIED SANDY LOAM TOPSOIL, V. CALC.
35	to	44	10YR6/6 SILTY FINE SAND TAILINGS - Fe STAIN
44	to	53	5YR4/6 STRONGLY Fe STAINED COARSE SAND w/SOME GRAVEL
53	to	56	10YR4/1 CLAY LOAM, SLIGHTLY CALC
56	to	95	10YR3/2 SILT LOAM, SLIGHTLY CALC
75	to	90	10YR3/2 AS ABOVE w/ 2 5% MED. SAND
90	to	117	10YR4/1 SILT LOAM w/ 10YR4/3 MOTTLED ZONES, MIC, NON CAL
117	to	125	AS ABOVE w/ 5-10% GRAVEL. GRAVEL CONTENT INCREASES W/ DEPTH. LOG CONT. BELOW

INSTALLATION: 33T09-90

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : #110/BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 116cm
BOTTOM LYS/SCREEN : 125 cm
TOP LYS/SCREEN : 119 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



33T09-90 LOG CONT.

125 - 134 10YR 3/2 V. SILTY, CLAYEY MED TO COARSE SAND W/ 20% GRAVEL

NOTES: LYSIMETER BODY # 56

33T09-40

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/24/90

COUNTY : DEER LODGE
LEGAL : NE¼ S14 T4N, R10W
DATE INSTALLED: 04/24/90

DRILLING:

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 87cm
HOLE DIAMETER : 10 cm

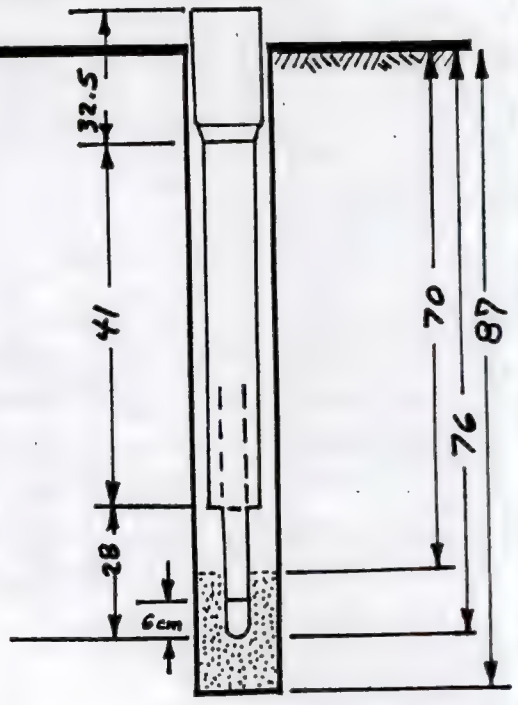
DRILLING LOG

DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 33T09-90
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 33T09-40

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : 765cm / BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 70cm
BOTTOM LYS/SCREEN : 76cm
TOP LYS/SCREEN : 70 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 58

33I10-150

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/24/90
COUNTY : DEER LODGE
LEGAL : NE1/4 S14 T 4 N, R10W
DATE INSTALLED: 04/24/90

DRILLING:

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS
HOLE DEPTH : 160 cm
HOLE DIAMETER : 10 cm

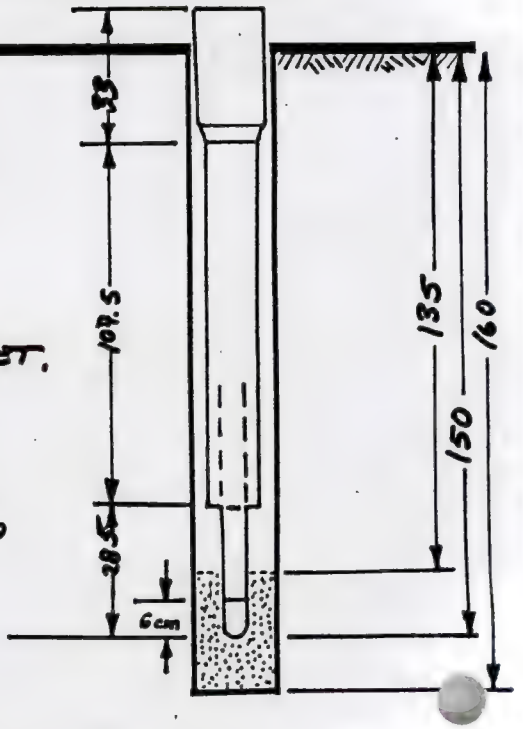
DRILLING LOG

DEPTH INTERVAL			DESCRIPTION
0	to	31 cm	10YR4/6 SILTY F. SAND TAILINGS W/MOD. AMOUNT CHUNKY AMEND
31	to	36	10YR 4/2 MIXED SILTY TAILINGS, FE MOTTLING. GRADES
~~36~~	to	~~#~~	DOWNWARD TO 10 YR 4/1 MOTTLED SILT TAILINGS, NONCALC
36	to	41	7.5YR 4/6 F. SAND TAILINGS, FE STAINED
41	to	51	10 YR 4/1 SILT LOAM (TRUNCATED "A")
51	to	61	10YR 3/3 CLAY LOAM, SLIGHTLY CALC
61	to	94	10YR 4/2 SILT LOAM, VIOLENTLY CALC (BC) STRONGLY
	to		FE MOTTLED 64-68 cm
			CONT. BELOW

INSTALLATION: 33I10-150

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : #130/BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 135cm
BOTTOM LYS/SCREEN : 150 cm
TOP LYS/SCREEN : 144 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



33I10-150 LOG CONT.

94-115 10YR 5/2 CLAY LOAM, VIOLENTLY CALC, WET.
115-120 10YR 6/3 CLAY LOAM, VIOLENTLY CALC.
120-146 10YR 5/2 CLAYEY MED. SAND, V. CALC, BECOMES SLIGHTLY GRAVELLY @ 142cm.
146-160 10YR 5/3 SLIGHTLY CLAYEY, V. SILTY FINE TO MED. SAND. SLIGHTLY CALC.

NOTES: LYSIMETER BODY # 53

33/9

33I10-90

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/24/90

COUNTY : DEER LODGE
LEGAL : NE1/4 S14 T 4 N, R 10W
DATE INSTALLED: 04/24/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 100 cm
HOLE DIAMETER : 10 cm

DRILLING LOG

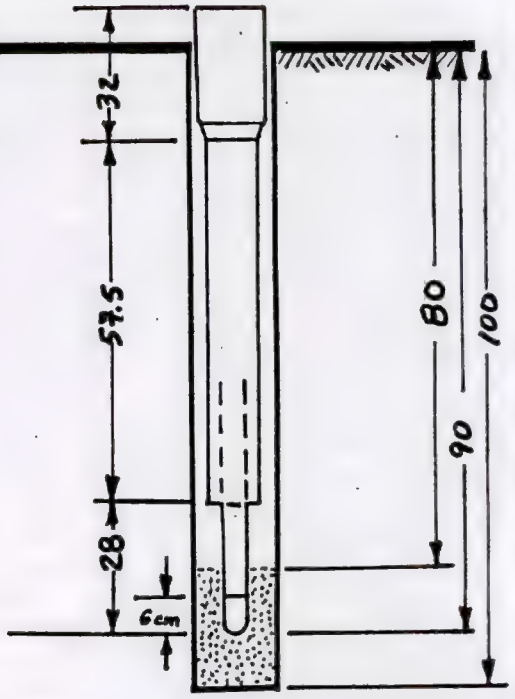
DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 33I10-150
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 33I10-90

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : 27.5cm / BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 80cm
BOTTOM LYS/SCREEN : 90cm
TOP LYS/SCREEN : 84cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY @ 54

****

33/10

33I10-40

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/24/90

COUNTY : DEER LODGE
LEGAL : NE1/4 S14 T4 N R10W
DATE INSTALLED: 04/24/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 48 cm
HOLE DIAMETER : 10 cm

DRILLING LOG

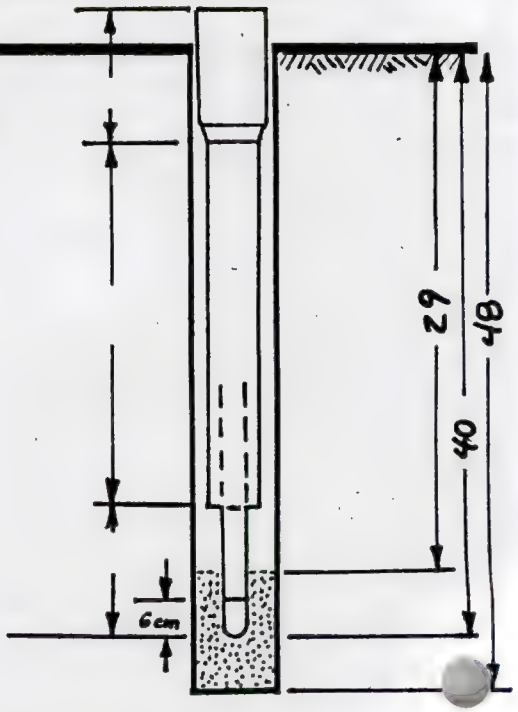
DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 33I10-150
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 33I10-40

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ± 24cm / BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 29cm
BOTTOM LYS/SCREEN : 40 cm
TOP LYS/SCREEN : 34 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BOOY # 55

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33/11

33C 12-150

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/24/90

COUNTY : DEER LODGE
LEGAL : NE 1/4 S14, T4N, R10W
DATE INSTALLED: 04/24/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 160 cm
HOLE DIAMETER : 10 cm

DRILLING LOG

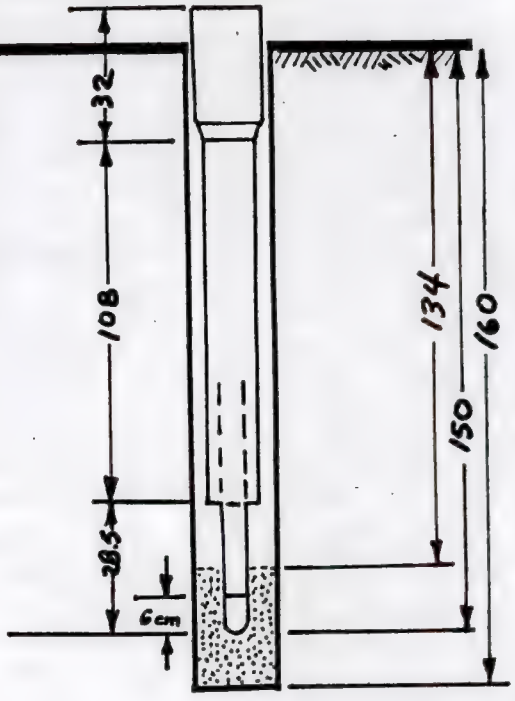
DEPTH INTERVAL			DESCRIPTION
0	to	51 cm	10YR 5/4 SILTY F. SAND TAILINGS
51	to	68	10YR 4/1 SILT LOAM, ABUND. OLD ROOTS, GRAN. STRUCT.
68	to	91	10YR 5/3 CLAY LOAM, VERY CALC (Bk)
91	to	103	10YR 2/1 SILT LOAM, V. CALC
103	to	137	10YR 3/3 SILT LOAM, MOD. CALC
	to		SATURATED THROUGHOUT
137	to	160	10YR 5/2 CLAY LOAM, VIOLENTLY CALC (2Bk) OR (Bc)
	to		

INSTALLATION: 33C 12-150

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ±128cm / BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 134cm
BOTTOM LYS/SCREEN : 150cm
TOP LYS/SCREEN : 144cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY #50

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33/12

33C 12-90

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/24/90

COUNTY : DEER LODGE
LEGAL : NE¼ S14 T4N, R10W.
DATE INSTALLED: 04/24/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOETTING / JENNINGS

HOLE DEPTH : 101cm
HOLE DIAMETER : 10 cm

DRILLING LOG

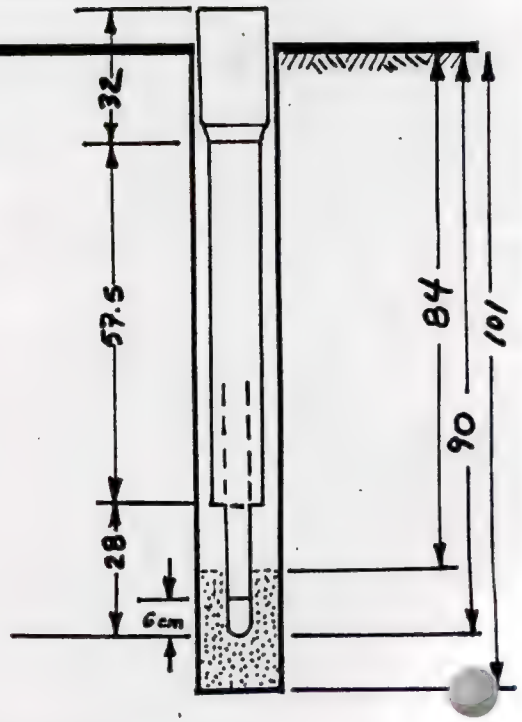
DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 33C 12-150
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 33C 12-90

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : ±78cm/BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 84cm
BOTTOM LYS/SCREEN : 90 cm
TOP LYS/SCREEN : 84 cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 51

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33/13

33C12-40

LYSIMETER/WELL INSTALLATION REPORT

LOCATION:

****

CLIENT : 12020
JOB NAME : STARS
DATE DRILLED: 04/24/90

COUNTY : DEER LODGE
LEGAL : NE1/4, S14, T4N, R10W
DATE INSTALLED: 04/24/90

DRILLING:

****

METHOD : BUCKET AUGER
DRILLER : GOERING / JENNINGS

HOLE DEPTH : 48cm
HOLE DIAMETER : 10cm

DRILLING LOG

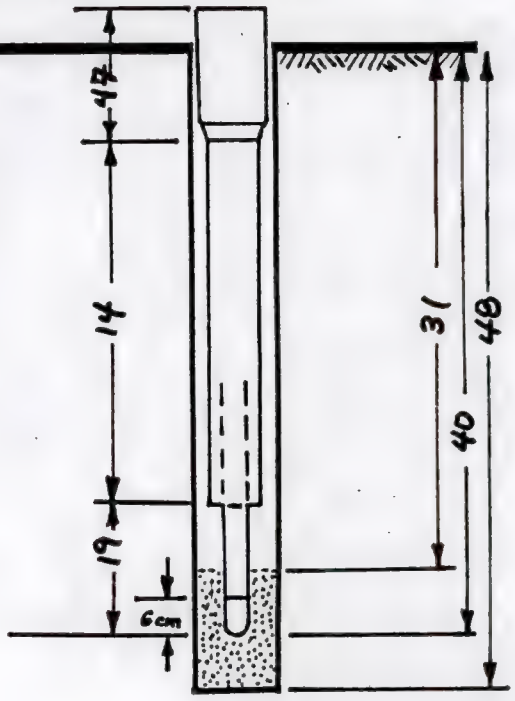
DEPTH INTERVAL			DESCRIPTION
0	to	cm	SEE 33C12-150
	to		
	to		
	to		
	to		
	to		
	to		
	to		

INSTALLATION: 33C12-40

****

LYS/SCREEN/PERF TYPE : CERAMIC CUP
LYS PREPARATION : STARS PROTOCOL
MULTIPLE LYSIMETERS :
BOTTOM GROUT TYPE/DEPTH: NONE
TOP GROUT TYPE/DEPTH : #25cm/BENTONITE SLURRY
PACK TYPE/DEPTH : SILICA (MINUS 200 MESH) 31cm
BOTTOM LYS/SCREEN : 40cm
TOP LYS/SCREEN : 34cm
BACKFILL TYPE/METHOD : 1/4" BENTONITE PELLETS

INSTALLATION DIAGRAM



NOTES: LYSIMETER BODY # 52

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APPENDIX C3

AMENDMENT APPLICATION RATES
(PHASE II)

SILVER BOW CREEK / STARS
SOIL AMENDMENT RATES BY PLOT

PLOT NUMBER	SAMPLE NUMBER	TREAT. CODE	CaCO3 PER PLOT (pounds)	Ca(OH)2 PER PLOT (pounds)	PHOS. GYPSUM PER PLOT (pounds)	FERRIC SULFATE PER PLOT (pounds)	NITROGEN PER PLOT (pounds)	P2O5 PER PLOT (pounds)	K2O PER PLOT (pounds)	BORON PER PLOT (pounds)
** SITE NUMBER 2										
1	2-1	T	1391	312	220.3	55.1	0.41	0.69	1.03	0.020
2	2-2	A	560	277	117.5	29.4	0.22	0.37	0.55	0.010
3	2-3	I	2426	869	117.5	29.4	0.22	0.37	0.55	0.010
4	2-4	C	0	0	0.0	0.0	0.22	0.37	0.55	0.010
5	2-5	X	0	508	0.0	0.0	0.00	0.00	0.00	0.000
6	2-6	D	8637	1815	470.0	117.5	0.22	0.37	0.55	0.010
7	2-7	T	963	197	220.3	55.1	0.41	0.69	1.03	0.020
8	2-8	A	805	399	117.5	29.4	0.22	0.37	0.55	0.010
9	2-9	X	0	2417	0.0	0.0	0.00	0.00	0.00	0.000
10	2-10	D	13407	2578	470.5	117.5	0.22	0.37	0.55	0.010
11	2-11	I	4278	1560	117.5	29.4	0.22	0.37	0.55	0.010
12	2-12	C	0	0	0.0	0.0	0.22	0.37	0.55	0.010
13	2-13	I	3719	1321	117.5	29.4	0.22	0.37	0.55	0.010
14	2-14	A	205	38	117.5	29.4	0.22	0.37	0.55	0.010
15	2-15	C	0	0	0.0	0.0	0.22	0.37	0.55	0.010
16	2-16	D	12102	2427	470.0	117.6	0.22	0.37	0.55	0.010
17	2-17	X	0	558	0.0	0.0	0.00	0.00	0.00	0.000
18	2-18	T	476	140	220.3	55.1	0.41	0.69	1.03	0.020
19	2-19	T	560	277	220.3	55.1	0.41	0.69	1.03	0.020
20	2-20	C	0	0	0.0	0.0	0.22	0.37	0.55	0.010
21	2-21	X	0	976	0.0	0.0	0.00	0.00	0.00	0.000
22	2-22	A	260	129	165.0	29.4	0.22	0.37	0.55	0.010
23	2-23	I	2662	986	117.5	29.4	0.22	0.37	0.55	0.010
24	2-24	D	12390	2519	470.0	117.6	0.22	0.37	0.55	0.010

TREATMENT CODES: C = CONTROL A = AGRICULTURAL INCORPORATION T = TOPSOILED PLOTS
D = DEEP TILLAGE I = LIME SLURRY INJECTION (LSPI) X = EXTRA PLOTS (Various treatments)

NOTE: All surface lime amendments are calculated for the 0 to 8 inch layer.

SILVER BOW CREEK / STARS
SOIL AMENDMENT RATES BY PLOT

PLOT NUMBER	SAMPLE NUMBER	TREAT. CODE	CaCO3 PER PLOT (pounds)	Ca(OH)2 PER PLOT (pounds)	PHOS. GYPSUM PER PLOT (pounds)	FERRIC SULFATE PER PLOT (pounds)	NITROGEN PER PLOT (pounds)	P2O5 PER PLOT (pounds)	K2O PER PLOT (pounds)	BORON PER PLOT (pounds)
** SITE NUMBER 7										
1	7-1	A	298	148	0.0	0.0	0.22	0.37	0.55	0.010
2	7-2	C	0	0	0.0	0.0	0.22	0.37	0.55	0.010
3	7-3	D	784	372	0.0	0.0	0.22	0.37	0.55	0.010
4	7-4	X	0	0	0.0	0.0	0.00	0.00	0.00	0.000
5	7-5	I	1690	844	0.0	0.0	0.22	0.37	0.55	0.010
6	7-6	T	396	196	0.0	0.0	0.41	0.69	1.03	0.020
7	7-7	X	0	0	0.0	0.0	0.00	0.00	0.00	0.000
8	7-8	I	2043	1015	0.0	0.0	0.22	0.37	0.55	0.010
9	7-9	D	955	457	0.0	0.0	0.22	0.37	0.55	0.010
10	7-10	A	204	101	0.0	0.0	0.22	0.37	0.55	0.010
11	7-11	C	0	0	0.0	0.0	0.22	0.37	0.55	0.010
12	7-12	T	135	67	0.0	0.0	0.41	0.69	1.03	0.020
13	7-13	T	183	91	0.0	0.0	0.41	0.69	1.03	0.020
14	7-14	D	564	263	0.0	0.0	0.22	0.37	0.55	0.010
15	7-15	X	0	0	0.0	0.0	0.00	0.00	0.00	0.000
16	7-16	A	14	4	0.0	0.0	0.22	0.37	0.55	0.010
17	7-17	C	0	0	0.0	0.0	0.22	0.37	0.55	0.010
18	7-18	I	1148	559	0.0	0.0	0.22	0.37	0.55	0.010
19	7-19	T	520	258	0.0	0.0	0.41	0.69	1.03	0.020
20	7-20	D	759	359	0.0	0.0	0.22	0.37	0.55	0.010
21	7-21	C	14	3	0.0	0.0	0.22	0.37	0.55	0.010
22	7-22	I	1016	493	0.0	0.0	0.22	0.37	0.55	0.010
23	7-23	A	14	3	0.0	0.0	0.22	0.37	0.55	0.010
24	7-24	X	48	9	0.0	0.0	0.00	0.00	0.00	0.000
** SITE NUMBER 21										
1	21-1	T	947	469	220.3	55.1	0.41	0.69	1.03	0.020
2	21-2	D	629	312	470.0	117.6	0.00	0.37	0.55	0.010
3	21-3	X	509	252	117.5	29.4	0.00	0.37	0.55	0.010
4	21-4	I	1396	654	117.5	29.4	0.00	0.37	0.55	0.010
5	21-5	A	531	263	117.5	29.4	0.00	0.37	0.55	0.010
6	21-6	C	0	0	0.0	0.0	0.00	0.37	0.55	0.010
7	21-7	D	1331	660	470.0	117.6	0.00	0.37	0.55	0.010
8	21-8	X	545	270	117.5	29.4	0.00	0.37	0.55	0.010
9	21-9	A	644	319	117.5	29.4	0.00	0.37	0.55	0.010
10	21-10	C	0	0	0.0	0.0	0.00	0.37	0.55	0.010
11	21-11	I	1490	700	117.5	29.4	0.00	0.37	0.55	0.010
12	21-12	T	1029	510	220.3	55.1	0.41	0.69	1.03	0.020
13	21-13	T	1018	504	220.3	55.1	0.41	0.69	1.03	0.020
14	21-14	I	1722	808	117.5	29.4	0.00	0.37	0.55	0.010
15	21-15	A	573	284	117.5	29.4	0.00	0.37	0.55	0.010
16	21-16	X	581	288	117.5	29.4	0.00	0.37	0.55	0.010
17	21-17	D	957	474	470.0	117.6	0.00	0.37	0.55	0.010
18	21-18	C	0	0	0.0	0.0	0.00	0.37	0.55	0.010
19	21-19	T	1088	539	220.3	55.1	0.41	0.69	1.03	0.020
20	21-20	C	0	0	0.0	0.0	0.11	0.37	0.55	0.010
21	21-21	D	1166	578	470.0	117.6	0.11	0.37	0.55	0.010
22	21-22	X	638	316	117.5	29.4	0.11	0.37	0.55	0.010
23	21-23	A	592	294	117.5	29.4	0.11	0.37	0.55	0.010
24	21-24	I	1532	710	117.5	29.4	0.11	0.37	0.55	0.010

TREATMENT CODES: C = CONTROL; A = AGRICULTURAL INCORPORATION; T = TOPSOILED PLOTS
D = DEEP TILLAGE; I = LIME SLURRY INJECTION (LSPI); X = EXTRA PLOTS (Various treatments)

NOTE: All surface lime amendments are calculated for the 0 to 8 inch layer.

SILVER BOW CREEK / STARS
SOIL AMENDMENT RATES BY PLOT

PLOT NUMBER	SAMPLE NUMBER	TREAT. CODE	CaCO3 PER PLOT (pounds)	Ca(OH)2 PER PLOT (pounds)	PHOS. GYPSUM PER PLOT (pounds)	FERRIC SULFATE PER PLOT (pounds)	NITROGEN PER PLOT (pounds)	P2O5 PER PLOT (pounds)	K2O PER PLOT (pounds)	BORON PER PLOT (pounds)
** SITE NUMBER 27										
1	27-1	X	316	156	0.0	0.0	0.00	0.00	0.00	0.000
2	27-2	C	0	0	0.0	0.0	0.00	0.37	0.00	0.000
3	27-3	I	0	0	0.0	0.0	0.00	0.00	0.00	0.000
4	27-4	A	336	166	0.0	29.4	0.00	0.37	0.00	0.000
5	27-5	D	161	80	0.0	29.4	0.00	0.37	0.00	0.000
6	27-6	T	0	0	0.0	0.0	0.00	0.00	0.00	0.000
7	27-7	A	321	159	0.0	29.4	0.00	0.37	0.00	0.000
8	27-8	I	0	0	0.0	0.0	0.00	0.00	0.00	0.000
9	27-9	X	301	149	0.0	0.0	0.00	0.00	0.00	0.000
10	27-10	C	0	0	0.0	0.0	0.00	0.37	0.00	0.000
11	27-11	D	342	168	0.0	29.4	0.00	0.37	0.00	0.000
12	27-12	T	0	0	0.0	0.0	0.00	0.00	0.00	0.000
13	27-13	X	332	164	0.0	0.0	0.00	0.00	0.00	0.000
14	27-14	C	0	0	0.0	0.0	0.00	0.37	0.00	0.000
15	27-15	I	0	0	0.0	0.0	0.00	0.00	0.00	0.000
16	27-16	D	271	136	0.0	29.4	0.00	0.37	0.00	0.000
17	27-17	A	264	131	0.0	29.4	0.00	0.37	0.00	0.000
18	27-18	T	0	0	0.0	0.0	0.00	0.00	0.00	0.000
19	27-19	A	322	160	0.0	29.4	0.00	0.37	0.00	0.000
20	27-20	X	300	148	0.0	0.0	0.00	0.00	0.00	0.000
21	27-21	C	0	0	0.0	0.0	0.00	0.37	0.00	0.000
22	27-22	D	263	130	0.0	29.4	0.00	0.37	0.00	0.000
23	27-23	I	0	0	0.0	0.0	0.00	0.00	0.00	0.000
24	27-24	T	0	0	0.0	0.0	0.00	0.00	0.00	0.000
** SITE NUMBER 33										
1	33-1	I	1590	734	73.4	0.0	0.00	0.37	0.55	0.010
2	33-2	D	1336	662	73.4	0.0	0.00	0.37	0.55	0.010
3	33-3	X	0	0	0.0	0.0	0.00	0.00	0.00	0.000
4	33-4	C	0	0	0.0	0.0	0.00	0.37	0.55	0.010
5	33-5	A	427	212	73.4	0.0	0.00	0.37	0.55	0.010
6	33-6	T	745	369	137.7	0.0	0.41	0.69	1.03	0.020
7	33-7	A	519	257	73.4	0.0	0.00	0.37	0.55	0.010
8	33-8	D	603	361	73.4	0.0	0.00	0.37	0.55	0.010
9	33-9	T	936	464	137.7	0.0	0.41	0.69	1.03	0.020
10	33-10	I	817	385	73.4	0.0	0.00	0.37	0.55	0.010
11	33-11	X	0	0	0.0	0.0	0.00	0.00	0.00	0.000
12	33-12	C	0	0	0.0	0.0	0.00	0.37	0.55	0.010
13	33-13	I	1293	603	73.4	0.0	0.00	0.37	0.55	0.010
14	33-14	T	561	278	137.7	0.0	0.41	0.69	1.03	0.020
15	33-15	X	0	0	0.0	0.0	0.00	0.00	0.00	0.000
16	33-16	C	0	0	0.0	0.0	0.00	0.37	0.55	0.010
17	33-17	D	869	681	73.4	0.0	0.00	0.37	0.55	0.010
18	33-18	A	723	358	73.4	0.0	0.00	0.37	0.55	0.010
19	33-19	T	1037	514	137.7	0.0	0.41	0.69	1.03	0.020
20	33-20	C	0	0	0.0	0.0	0.00	0.37	0.55	0.010
21	33-21	A	630	312	73.4	0.0	0.00	0.37	0.55	0.010
22	33-22	I	1198	568	73.4	0.0	0.00	0.37	0.55	0.010
23	33-23	D	1075	534	73.4	0.0	0.00	0.37	0.55	0.010
24	33-24	X	0	0	0.0	0.0	0.00	0.00	0.00	0.000

TREATMENT CODES: C = CONTROL A = AGRICULTURAL INCORPORATION T = TOPSOILED PLOTS
D = DEEP TILLAGE I = LIME SLURRY INJECTION (LSPI) X = EXTRA PLOTS (Various treatments)

NOTE: All surface lime amendments are calculated for the 0 to 8 inch layer.

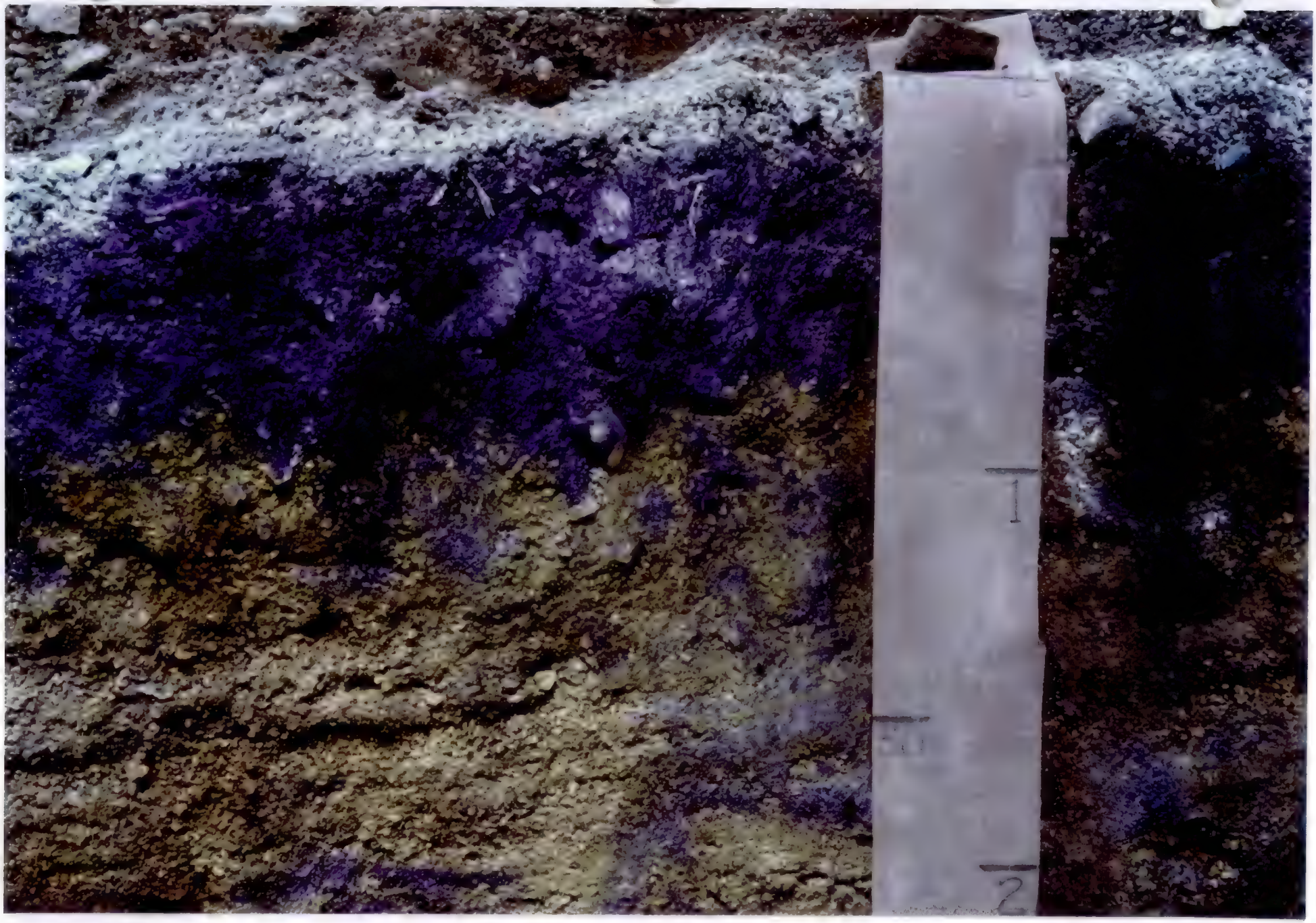
APPENDIX C4

AMENDMENT MIXING PHOTO DATA

Color and pH Scale Using Triplex Indicator		
Color	pH	Reaction
	8.5	**Alkali (Sodium Carbonate)**
	8.0	**Alkaline (Calcium Carbonate)**
	7.0	**Neutral**
	6.5	**Very Slightly Acid**
	6.0	**Slightly Acid**
	5.5	**Medium Acid**
	5.0	**Strongly Acid**
	4.5	**Very Strongly Acid**
	4.0	**Extremely Acid**

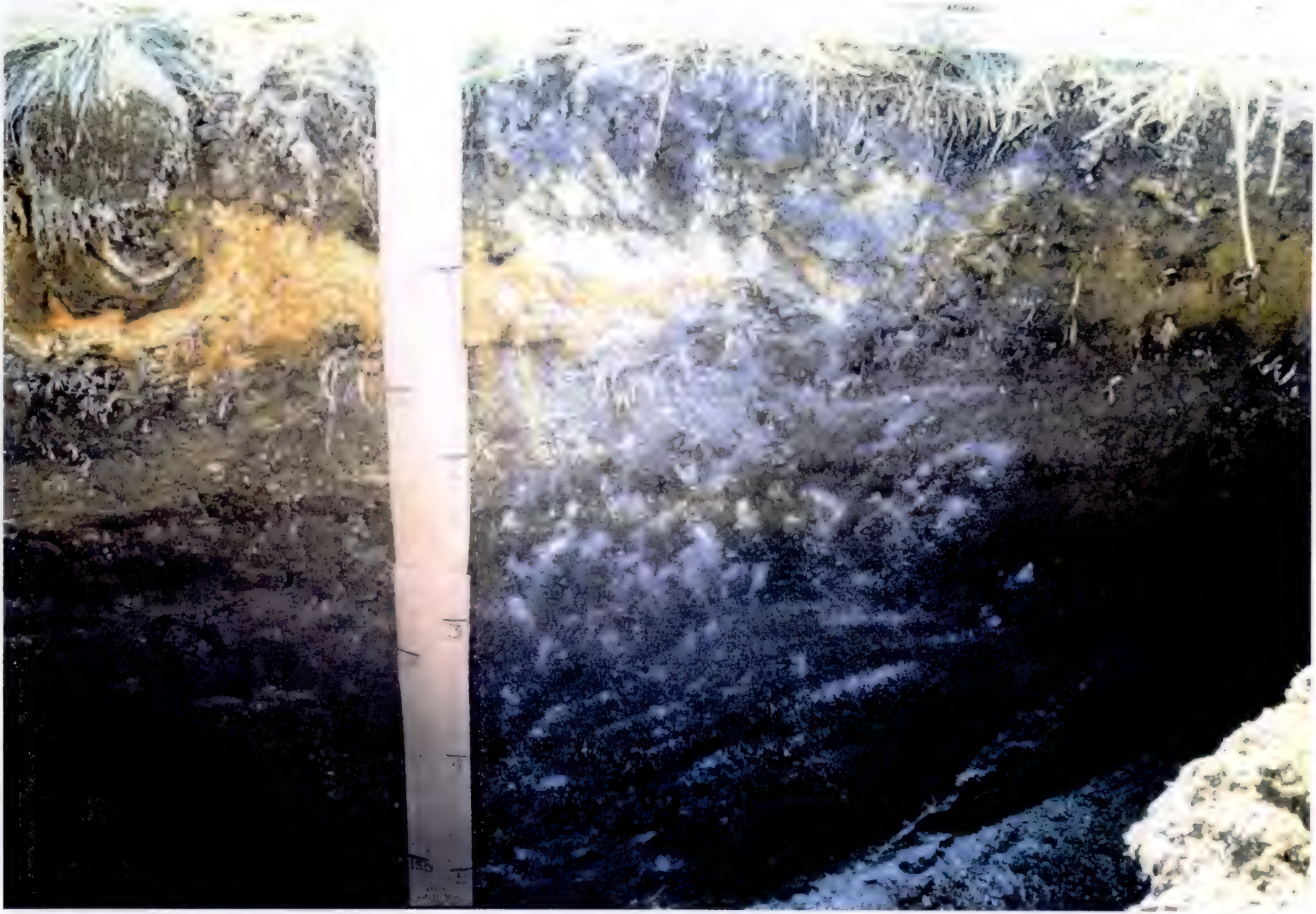
02I03

02D06

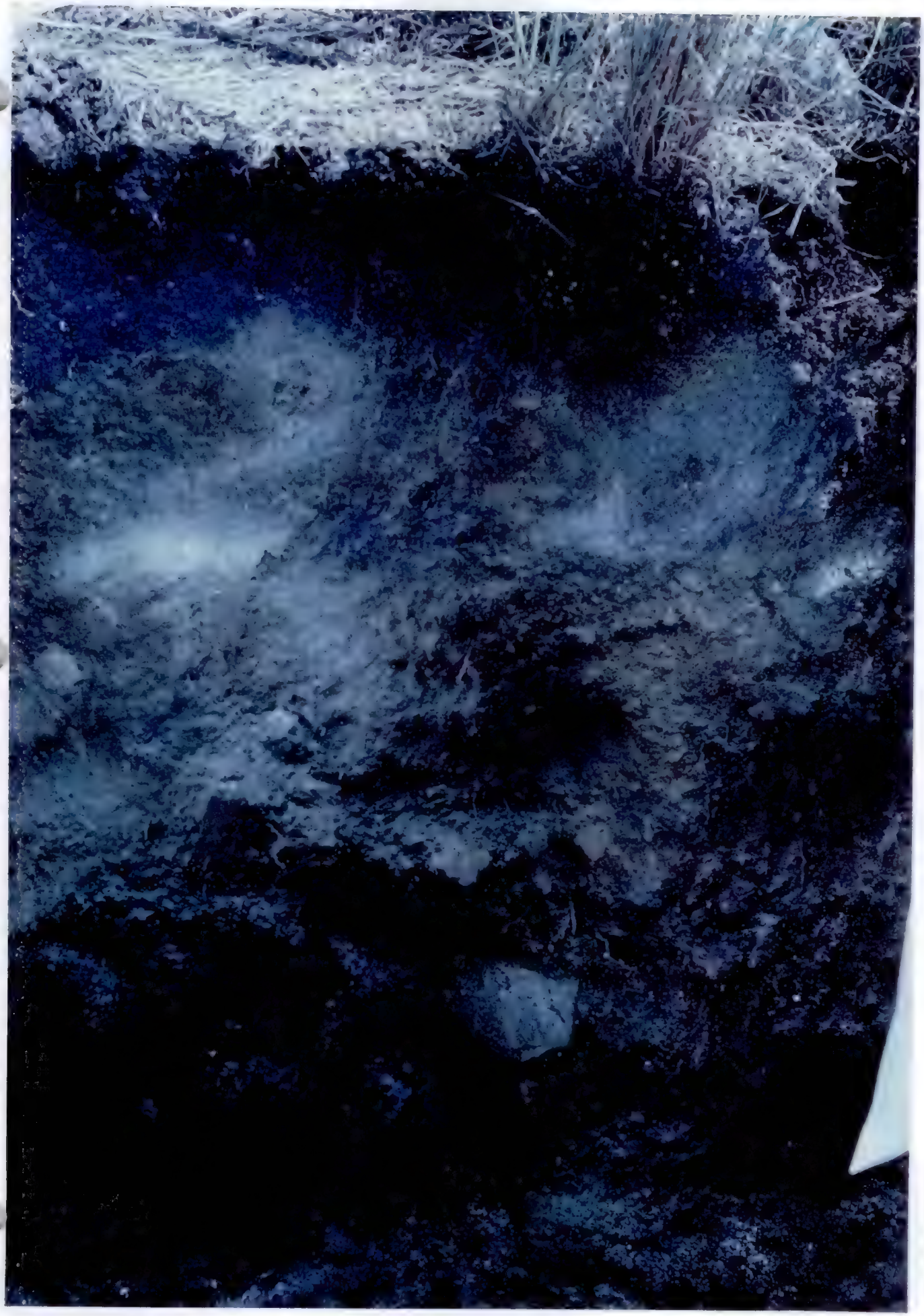


07I08

07D09



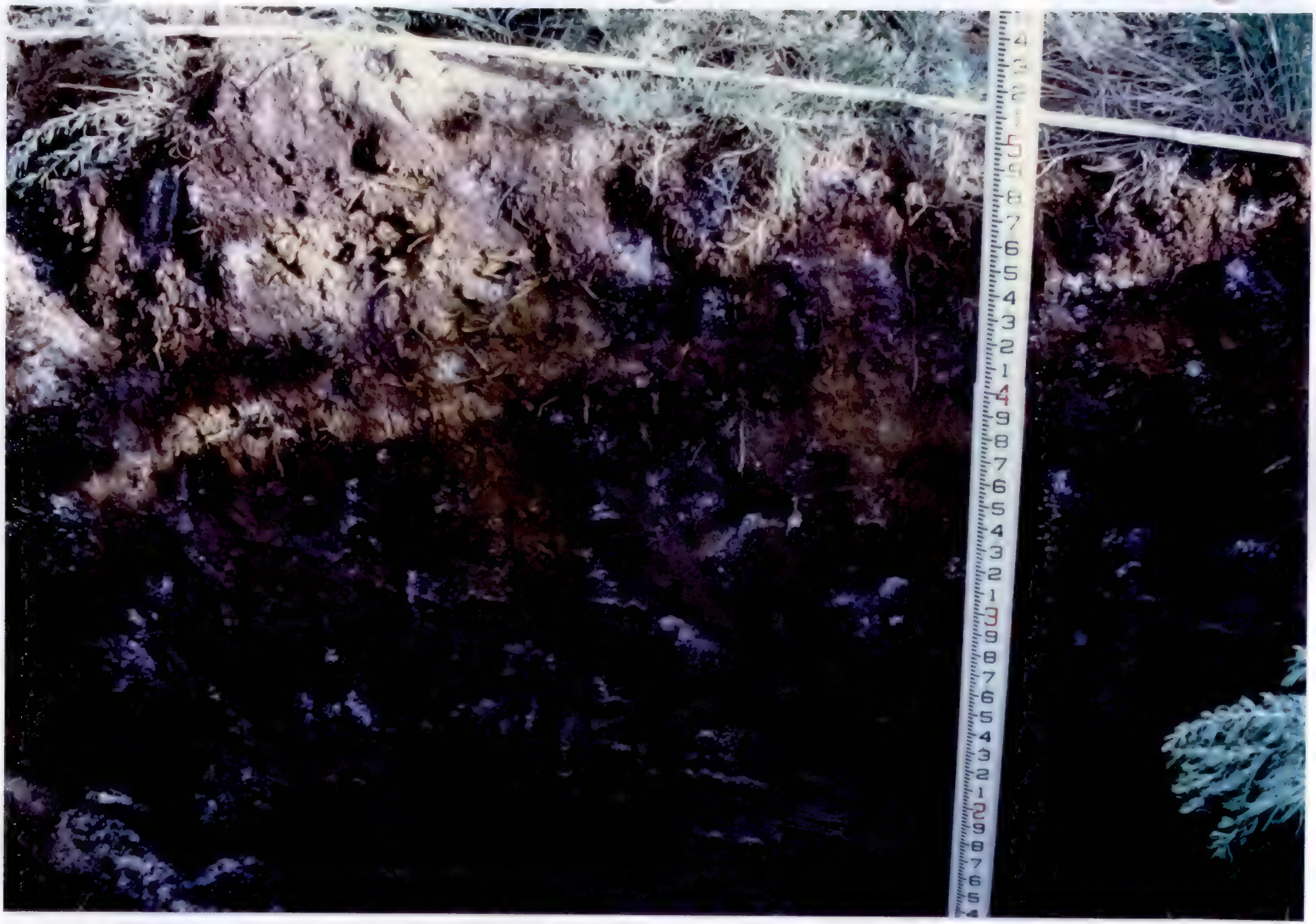
21A05



21D02

21104

27D05



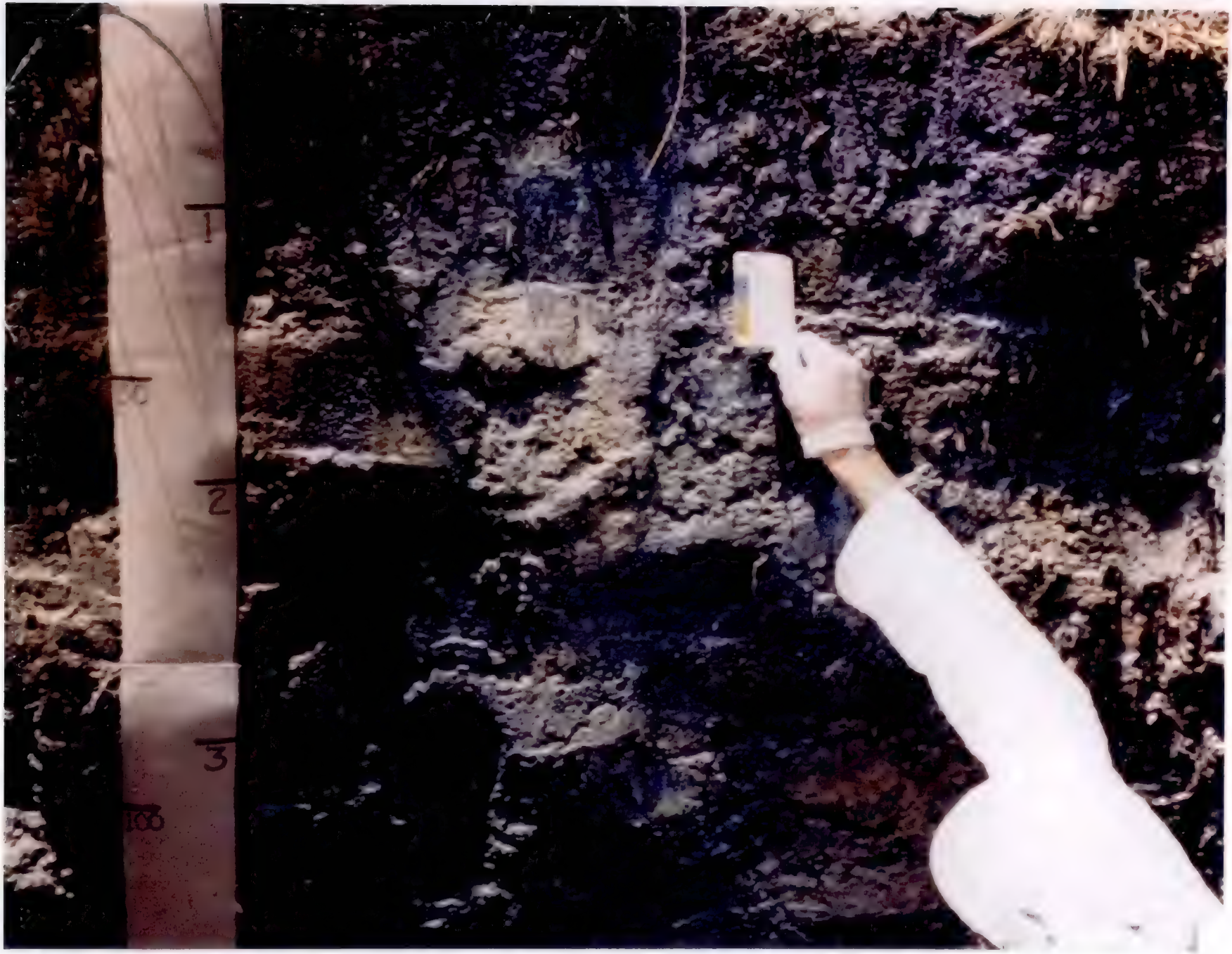
33D23

33I13

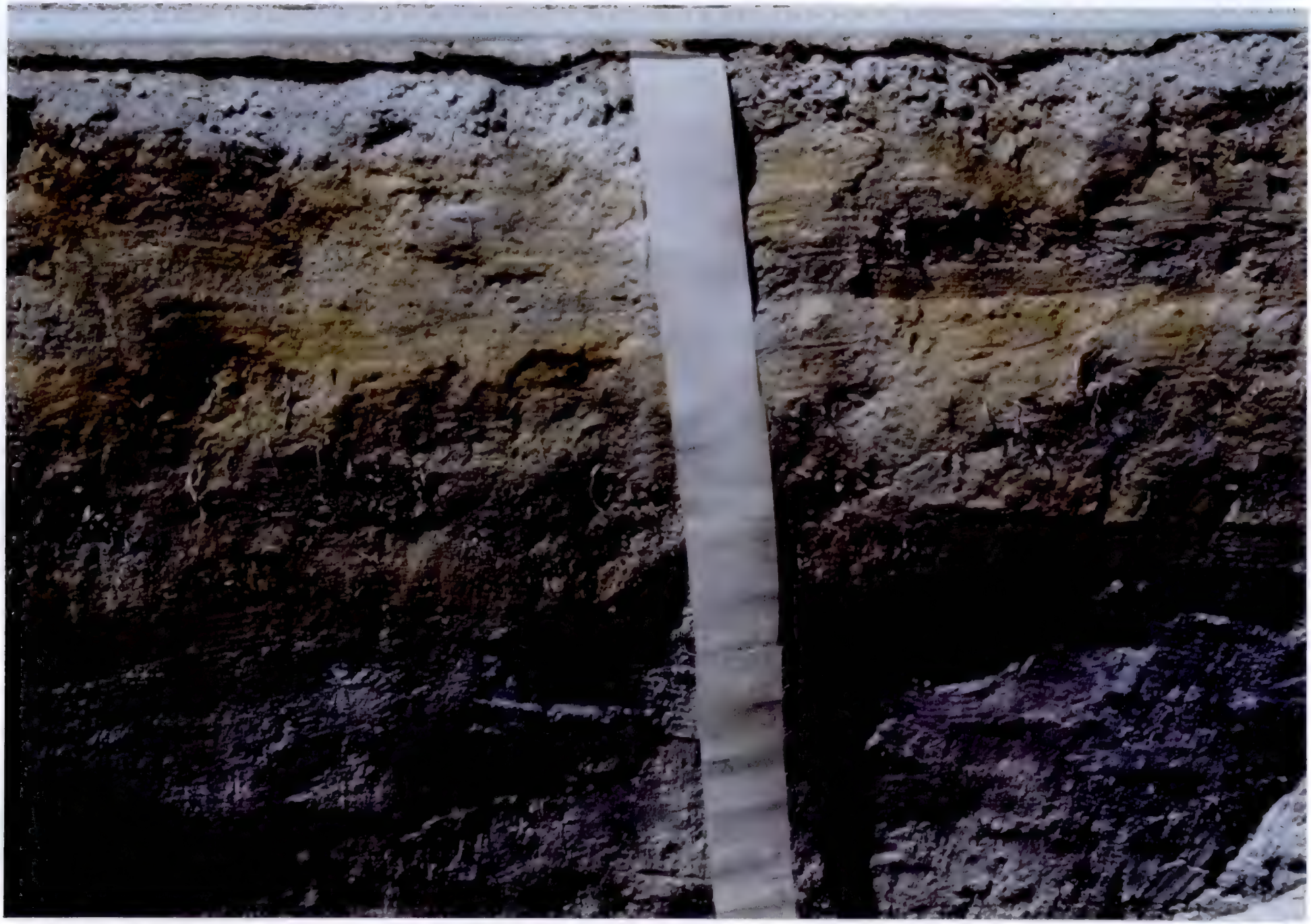
33I13

02C04

02C04



21A05



21C06

21D02

33D23

33I13

APPENDIX D

VEGETATION DATA

APPENDIX D1

SEEDLING DENSITY 1989

Table A.2. Vegetation density (plants/square meter) at STARS field plots measured in 1989.

Record#	STUDY	DATE	SITE	REP	MIX	PLANT	DF	IN	EX	CT	AG	TS_15	TS_0
1	stars	07/11/89	21	1	1	SG	220	68	0	0	120	200	200
2	stars	07/11/89	21	1	2	SG	140	240	0	0	32	60	340
3	stars	07/11/89	21	1	1	SF	20	0	0	0	4	32	40
4	stars	07/11/89	21	1	2	SF	0	64	0	0	0	12	24
5	stars	07/11/89	21	1	1	NSS	100	148	0	0	300	400	192
6	stars	07/11/89	21	1	2	NSS	180	260	0	0	320	400	220
7	stars	07/11/89	21	2	1	SG	60	76	0	0	44	108	208
8	stars	07/11/89	21	2	2	SG	140	76	0	0	88	180	280
9	stars	07/11/89	21	2	1	SF	0	0	0	0	0	60	80
10	stars	07/11/89	21	2	2	SF	0	0	0	0	0	48	64
11	stars	07/11/89	21	2	1	NSS	280	132	0	0	280	260	220
12	stars	07/11/89	21	2	2	NSS	180	140	0	0	200	320	300
13	stars	07/11/89	21	3	1	SG	120	84	0	0	160	144	260
14	stars	07/11/89	21	3	2	SG	168	68	0	0	80	280	260
15	stars	07/11/89	21	3	1	SF	16	0	0	0	4	24	36
16	stars	07/11/89	21	3	2	SF	40	4	0	0	4	88	92
17	stars	07/11/89	21	3	1	NSS	4	52	0	0	44	200	200
18	stars	07/11/89	21	3	2	NSS	16	140	0	0	80	192	108
19	stars	07/11/89	21	4	1	SG	132	0	0	0	0	160	200
20	stars	07/11/89	21	4	2	SG	152	120	0	0	28	192	120
21	stars	07/11/89	21	4	1	SF	0	0	0	0	0	60	52
22	stars	07/11/89	21	4	2	SF	20	4	0	0	0	72	120
23	stars	07/11/89	21	4	1	NSS	60	108	0	0	152	96	80
24	stars	07/11/89	21	4	2	NSS	52	212	0	0	216	56	100
25	stars	07/11/89	2	1	1	SG	196	152	356	168	48	440	228
26	stars	07/11/89	2	1	2	SG	140	160	108	8	12	232	168
27	stars	07/11/89	2	1	1	SF	36	12	48	8	0	8	20
28	stars	07/11/89	2	1	2	SF	36	4	8	0	0	24	64
29	stars	07/11/89	2	1	1	NSS	28	124	40	36	24	124	56
30	stars	07/11/89	2	1	2	NSS	64	116	56	20	24	92	60
31	stars	07/11/89	2	2	1	SG	72	92	80	0	64	200	256
32	stars	07/11/89	2	2	2	SG	84	16	64	0	148	220	256
33	stars	07/11/89	2	2	1	SF	4	52	4	0	0	0	12
34	stars	07/11/89	2	2	2	SF	8	0	4	0	40	56	36
35	stars	07/11/89	2	2	1	NSS	100	100	64	0	64	240	128
36	stars	07/11/89	2	2	2	NSS	40	148	72	0	56	148	76
37	stars	07/11/89	2	3	1	SG	20	52	60	0	68	240	88
38	stars	07/11/89	2	3	2	SG	140	80	112	0	28	120	52
39	stars	07/11/89	2	3	1	SF	0	0	4	0	0	28	52
40	stars	07/11/89	2	3	2	SF	4	8	8	0	4	72	20
41	stars	07/11/89	2	3	1	NSS	48	120	180	0	240	100	120
42	stars	07/11/89	2	3	2	NSS	80	80	80	0	112	52	132
43	stars	07/11/89	2	4	1	SG	48	80	112	0	160	96	160
44	stars	07/11/89	2	4	2	SG	100	48	80	0	168	112	140
45	stars	07/11/89	2	4	1	SF	0	4	0	0	12	4	4

Table A.2. Continued.

46	stars	07/11/89	2	4	2	SF	28	4	0	0	24	48	60
47	stars	07/11/89	2	4	1	NSS	60	24	24	0	24	120	100
48	stars	07/11/89	2	4	2	NSS	64	16	0	4	16	104	12
49	stars	07/11/89	7	1	1	SG	8	84	0	0	84	152	160
50	stars	07/11/89	7	1	2	SG	16	8	0	0	28	128	120
51	stars	07/11/89	7	1	1	SF	0	0	0	0	16	116	100
52	stars	07/11/89	7	1	2	SF	0	0	0	0	4	88	64
53	stars	07/11/89	7	1	1	NSS	72	100	0	4	84	88	92
54	stars	07/11/89	7	1	2	NSS	80	4	0	8	36	20	16
55	stars	07/11/89	7	2	1	SG	64	4	0	0	44	56	140
56	stars	07/11/89	7	2	2	SG	20	12	0	0	60	140	32
57	stars	07/11/89	7	2	1	SF	0	0	0	0	4	64	88
58	stars	07/11/89	7	2	2	SF	0	0	0	0	0	44	32
59	stars	07/11/89	7	2	1	NSS	40	20	0	4	140	60	60
60	stars	07/11/89	7	2	2	NSS	160	4	0	4	144	88	64
61	stars	07/11/89	7	3	1	SG	4	0	0	0	0	72	100
62	stars	07/11/89	7	3	2	SG	24	0	0	0	8	12	120
63	stars	07/11/89	7	3	1	SF	0	0	0	0	16	32	120
64	stars	07/11/89	7	3	2	SF	0	0	0	0	0	80	132
65	stars	07/11/89	7	3	1	NSS	72	12	0	36	88	200	120
66	stars	07/11/89	7	3	2	NSS	104	24	0	8	64	152	100
67	stars	07/11/89	7	4	1	SG	52	16	0	8	12	40	60
68	stars	07/11/89	7	4	2	SG	72	12	0	8	48	16	132
69	stars	07/11/89	7	4	1	SF	4	4	0	0	4	48	72
70	stars	07/11/89	7	4	2	SF	0	0	0	0	0	112	96
71	stars	07/11/89	7	4	1	NSS	240	112	0	4	96	200	192
72	stars	07/11/89	7	4	2	NSS	132	44	0	4	88	260	172
73	stars	07/11/89	27	1	1	SG	200	0	24	92	72	0	0
74	stars	07/11/89	27	1	2	SG	140	0	68	4	32	0	0
75	stars	07/11/89	27	1	1	SF	0	0	0	0	0	0	0
76	stars	07/11/89	27	1	2	SF	0	0	0	0	0	0	0
77	stars	07/11/89	27	1	1	NSS	100	0	120	44	32	0	0
78	stars	07/11/89	27	1	2	NSS	112	0	180	32	112	0	0
79	stars	07/11/89	27	2	1	SG	16	0	148	0	132	0	0
80	stars	07/11/89	27	2	2	SG	24	0	76	4	148	0	0
81	stars	07/11/89	27	2	1	SF	0	0	0	0	0	0	0
82	stars	07/11/89	27	2	2	SF	0	0	0	0	0	0	0
83	stars	07/11/89	27	2	1	NSS	112	0	32	4	40	0	0
84	stars	07/11/89	27	2	2	NSS	140	0	100	20	60	0	0
85	stars	07/11/89	27	3	1	SG	128	0	88	0	72	0	0
86	stars	07/11/89	27	3	2	SG	160	0	48	4	240	0	0
87	stars	07/11/89	27	3	1	SF	0	0	0	0	0	0	0
88	stars	07/11/89	27	3	2	SF	0	0	0	0	0	0	0
89	stars	07/11/89	27	3	1	NSS	152	0	16	32	192	0	0
90	stars	07/11/89	27	3	2	NSS	192	0	0	0	32	0	0
91	stars	07/11/89	27	4	1	SG	132	0	8	0	8	0	0
92	stars	07/11/89	27	4	2	SG	120	0	12	0	12	0	0

Table A.2. Continued.

93	stars	07/11/89	27	4	1	SF	0	0	0	0	0	0	0
94	stars	07/11/89	27	4	2	SF	0	0	0	0	0	0	0
95	stars	07/11/89	27	4	1	NSS	100	0	8	0	8	0	0
96	stars	07/11/89	27	4	2	NSS	100	0	0	0	0	0	0
97	stars	07/11/89	33	1	1	SG	0	12	0	0	16	64	32
98	stars	07/11/89	33	1	2	SG	28	88	0	0	16	100	220
99	stars	07/11/89	33	1	1	SF	0	0	0	0	0	72	60
100	stars	07/11/89	33	1	2	SF	0	0	0	0	0	64	72
101	stars	07/11/89	33	1	1	NSS	88	72	0	8	64	100	128
102	stars	07/11/89	33	1	2	NSS	24	100	0	4	12	132	92
103	stars	07/11/89	33	2	1	SG	12	8	0	0	0	72	152
104	stars	07/11/89	33	2	2	SG	40	0	0	0	4	280	220
105	stars	07/11/89	33	2	1	SF	4	0	0	0	0	160	104
106	stars	07/11/89	33	2	2	SF	8	0	0	0	0	64	72
107	stars	07/11/89	33	2	1	NSS	76	60	0	0	8	40	72
108	stars	07/11/89	33	2	2	NSS	60	88	0	4	8	52	48
109	stars	07/11/89	33	3	1	SG	52	4	0	0	4	16	20
110	stars	07/11/89	33	3	2	SG	112	60	0	0	36	232	148
111	stars	07/11/89	33	3	1	SF	4	0	0	0	0	220	4
112	stars	07/11/89	33	3	2	SF	0	0	0	0	0	220	44
113	stars	07/11/89	33	3	1	NSS	88	120	0	32	100	120	128
114	stars	07/11/89	33	3	2	NSS	84	100	0	8	52	72	100
115	stars	07/11/89	33	4	1	SG	4	0	0	0	4	60	8
116	stars	07/11/89	33	4	2	SG	112	88	0	0	12	140	152
117	stars	07/11/89	33	4	1	SF	4	0	0	0	0	16	16
118	stars	07/11/89	33	4	2	SF	0	0	0	0	0	16	8
119	stars	07/11/89	33	4	1	NSS	132	148	0	0	44	180	192
120	stars	07/11/89	33	4	2	NSS	140	132	0	0	88	120	152

Plant Codes:

SG = Seeded Grasses
SF = Seeded Forbs
NSS = Nonseeded Species

Treatment Codes:

DP = Deep Plow
IN = Injection
EX = Extra
CT = Control
AG = Agricultural
TS-15 = Coversoil at 38 cm (15 inches)
TS-6 = Coversoil at 15 cm (6 inches)

APPENDIX D2

AERIAL COVER 1989

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	2			2			2			2				
Treatment	T (15")			T (15")			T (15")			T (15")				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	1			7			18			19			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	10	18	14	15	25	20	3	35	19	15	50	32.5	21.38	7.87
NSG	20	22	21	30	32	31	25	30	27.5	15	2	8.5	22.00	9.91
LGS	1	1	1	0	0	0	30	15	22.5	0	0	0	5.88	11.09
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			36			51			69			41	49.25	14.57

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	2			2			2			2				
Treatment	T (6")			T (6")			T (6")			T (6")				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	1			7			18			19				
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	treatment mean	treatment std.dev.
Plant Species														
SG	25	12	18.5	10	8	9	3	15	9	25	30	27.5	16.00	8.88
NSG	6	9	7.5	25	25	25	15	15	15	20	15	17.5	16.25	7.22
LGS	12	1	6.5	0	0	0	35	10	22.5	0	1	0.5	7.38	10.51
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			32.5			34			46.5			45.5	39.63	7.40

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	2			2			2			2				
Treatment	A			A			A			A				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	2			8			14			22			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	1	1	1	2	0	1	12	5	8.5	8	10	9	4.88	4.48
NSG	0	0	0	4	1	2.5	5	1	3	4	0	2	1.88	1.31
LGS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			1			3.5			11.5			11	6.75	5.30

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	2			2			2			2				
Treatment	I			I			I			I				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	3			11			13			23				
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	treatment mean	treatment std.dev.
Plant Species														
SG	2	10	6	2	1	1.5	3	8	5.5	6	2	4	4.25	2.02
NSG	3	12	7.5	10	8	9	3	5	4	4	3	3.5	6.00	2.68
LGS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			13.5			10.5			9.5			7.5	10.25	2.50

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	2			2			2			2				
Treatment	C			C			C			C				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	4			12			15			20			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	2	0	1	0	0	0	0	0	0	0	0	0	0.25	0.50
NSG	7	0	3.5	0	0	0	0	0	0	0	0	0	0.88	1.75
LGS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			4.5			0			0			0	1.13	2.25

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	2			2			2			2				
Treatment	X			X			X			X				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	5			9			17			21			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	12	8	10	1	1	1	3	2	2.5	2	1	1.5	3.75	4.21
NSG	0	5	2.5	7	12	9.5	12	5	8.5	1	1	1	5.38	4.25
LGS	1	1	1	0	0	0	0	0	0	0	0	0	0.25	0.50
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			13.5			10.5			11			2.5	9.38	4.77

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	2			2			2			2				
Treatment	D			D			D			D				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	6			10			16			24			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	5	6	5.5	2	5	3.5	1	1	1	1	1	1	2.75	2.18
NSG	5	5	5	10	0	5	2	1	1.5	9	5	7	4.63	2.29
LGS	1	2	1.5	0	0	0	0	0	0	1	1	1	0.63	0.75
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			12			8.5			2.5			9	8.00	3.98

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	2			2			2			2				
Treatment	T (15")			T (15")			T (15")			T (15")				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	1			7			18			19			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	12	10	11	30	30	30	18	30	24	20	75	47.5	28.13	15.16
NSG	25	15	20	30	8	19	18	25	21.5	15	1	8	17.13	6.17
LGS	32	8	20	5	10	7.5	58	48	53	28	25	26.5	26.75	19.19
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			51			56.5			98.5			82	72.00	22.24

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	2			2			2			2				
Treatment	T (6")			T (6")			T (6")			T (6")				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	1			7			18			19			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	25	12	18.5	25	40	32.5	15	5	10	35	35	35	24.00	11.83
NSG	15	8	11.5	40	30	35	10	15	12.5	1	7	4	15.75	13.38
LGS	15	25	20	12	25	18.5	60	30	45	28	20	24	26.88	12.30
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			50			86			67.5			63	66.63	14.90

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	2			2			2			2				
Treatment	A			A			A			A				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	2			8			14			22			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	0	0	0	0	1	0.5	12	0	6	5	1	3	2.38	2.75
NSG	0	0	0	4	1	2.5	6	10	8	5	5	5	3.88	3.42
LGS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			0			3			14			8	6.25	6.13

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	2			2			2			2				
Treatment	I			I			I			I				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	3			11			13			23			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	5	1	3	0	0	0	12	4	8	3	1	2	3.25	3.40
NSG	15	7	11	1	8	4.5	3	10	6.5	12	2	7	7.25	2.72
LGS	0	0	0	0	0	0	1	1	1	1	0	0.5	0.38	0.48
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			14			4.5			15.5			9.5	10.88	4.96

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	2			2			2			2				
Treatment	C			C			C			C				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	4			12			15			20				
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	treatment mean	treatment std.dev.
Plant Species														
SG	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
LGS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			0			0			0			0	0.00	0.00

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	2			2			2			2				
Treatment	X			X			X			X				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	5			9			17			21			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	1	0	0.5	3	0	1.5	12	18	15	0	1	0.5	4.38	7.10
NSG	7	0	3.5	3	12	7.5	15	6	10.5	1	1	1	5.63	4.21
LGS	0	0	0	0	0	0	0	1	0.5	0	0	0	0.13	0.25
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			4			9			26			1.5	10.13	11.03

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	2			2			2			2				
Treatment	D			D			D			D				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	6			10			16			24			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	1	3	2	0	1	0.5	1	1	1	0	1	0.5	1.00	0.71
NSG	4	5	4.5	3	3	3	8	12	10	2	8	5	5.63	3.04
LGS	3	1	2	0	0	0	0	0	0	0	0	0	0.50	1.00
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			8.5			3.5			11			5.5	7.13	3.30

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	7			7			7			7				
Treatment	T (15")			T (15")			T (15")			T (15")				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	6			12			13			19			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	10	3	6.5	20	5	12.5	6	1	3.5	10	15	12.5	8.75	4.50
NSG	20	60	40	30	8	19	30	55	42.5	90	95	92.5	48.50	31.17
LGS	23	15	19	20	20	20	25	15	20	50	60	55	28.50	17.67
WDS	5	0	2.5	0	12	6	0	0	0	0	0	0	2.13	2.84
TOTAL COVER			68			57.5			66			160	87.88	48.30

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	7			7			7			7				
Treatment	T (6")			T (6")			T (6")			T (6")				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	6			12			13			19			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	8	25	16.5	4	22	13	15	20	17.5	25	30	27.5	18.63	6.22
NSG	28	5	16.5	8	5	6.5	5	80	42.5	85	90	87.5	38.25	36.17
LGS	25	40	32.5	23	15	19	40	85	62.5	90	90	90	51.00	31.73
WDS	0	9	4.5	0	0	0	0	0	0	0	0	0	1.13	2.25
TOTAL COVER			70			38.5			122.5			205	109.00	72.78

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	7			7			7			7				
Treatment	A			A			A			A				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	1			10			16			23			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	35	20	27.5	27	8	17.5	4	1	2.5	15	1	8	13.88	11.00
NSG	6	12	9	23	21	22	6	20	13	15	6	10.5	13.63	5.82
LGS	35	9	22	22	1	11.5	2	5	3.5	0	0	0	9.25	9.77
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			58.5			51			19			18.5	36.75	21.01

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	7			7			7			7				
Treatment	I			I			I			I				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	5			8			18			22			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	35	5	20	0	0	0	6	1	3.5	0	5	2.5	6.50	9.12
NSG	5	30	17.5	0	1	0.5	5	0	2.5	7	15	11	7.88	7.87
LGS	0	12	6	0	0	0	0	0	0	1	0	0.5	1.63	2.93
WDS	3	0	1.5	0	0	0	0	0	0	0	0	0	0.38	0.75
TOTAL COVER			45			0.5			6			14	16.38	19.87

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	7			7			7			7				
Treatment	C			C			C			C				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	2			11			17			21			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	0	0	0	0	0	0	0	0	0	3	0	1.5	0.38	0.75
NSG	0	0	0	1	1	1	1	1	1	7	5	6	2.00	2.71
LGS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			0			1			1			7.5	2.38	3.45

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	7			7			7			7				
Treatment	D			D			D			D				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	3			9			14			20			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	17	40	28.5	15	15	15	10	4	7	8	10	9	14.88	9.70
NSG	6	10	8	32	10	21	20	25	22.5	25	22	23.5	18.75	7.24
LGS	0	1	0.5	2	5	3.5	0	1	0.5	1	0	0.5	1.25	1.50
WDS	6	0	3	0	0	0	0	0	0	0	0	0	0.75	1.50
TOTAL COVER			40			39.5			30			33	35.63	4.92

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 (% Aerial Cover)

Site	7			7			7			7				
Treatment	T (15")			T (15")			T (15")			T (15")				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	6			12			13			19			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	20	35	27.5	10	25	17.5	5	0	2.5	5	5	5	13.13	11.61
NSG	25	35	30	20	8	14	70	55	62.5	70	95	82.5	47.25	30.97
LGS	25	25	25	10	25	17.5	25	25	25	70	15	42.5	27.50	10.61
WDS	15	0	7.5	0	0	0	0	6	3	0	0	0	2.63	3.54
TOTAL COVER			90			49			93			130	90.50	33.11

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 (% Aerial Cover)

Site	7			7			7			7				
Treatment	T (6")			T (6")			T (6")			T (6")				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	6			12			13			19			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	15	25	20	10	8	9	8	15	11.5	32	20	26	16.63	7.82
NSG	25	15	20	25	18	21.5	58	50	54	80	70	75	42.63	26.68
LGS	95	70	82.5	10	15	12.5	85	75	80	60	85	72.5	61.88	33.19
WDS	25	10	17.5	0	0	0	5	0	2.5	0	0	0	5.00	8.42
TOTAL COVER			140			43			148			173.5	126.13	57.23

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	7			7			7			7				
Treatment	A			A			A			A				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	1			10			16			23			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	28	22	25	85	25	55	1	18	9.5	10	25	17.5	26.75	19.87
NSG	7	0	3.5	30	12	21	20	18	19	6	8	7	12.63	8.67
LGS	6	0	3	2	0	1	0	1	0.5	0	0	0	1.13	1.31
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			31.5			77			29			24.5	40.50	24.51

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	7			7			7			7				
Treatment	I			I			I			I				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	5			8			18			22			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	0	0	0	1	0	0.5	15	1	8	3	20	11.5	5.00	5.67
NSG	0	0	0	1	0	0.5	5	0	2.5	1	0	0.5	0.88	1.11
LGS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			0			1			10.5			12	5.88	6.25

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	7			7			7			7				
Treatment	C			C			C			C				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	2			11			17			21			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	1	1	1	0	0	0	0	0	0	0	0	0	0.25	0.50
NSG	0	0	0	1	1	1	6	3	4.5	1	0	0.5	1.50	2.04
LGS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS	0	0	0	0	0	0	0	0.5	0.25	0	0	0	0.06	0.13
TOTAL COVER			1			1			4.75			0.5	1.81	1.97

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	7			7			7			7				
Treatment	D			D			D			D				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	3			9			14			20			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	0	18	9	32	23	27.5	10	2	6	15	25	20	15.63	9.94
NSG	30	12	21	15	10	12.5	10	20	15	35	25	30	19.63	7.78
LGS	0	2	1	0	0	0	0	0	0	0	0	0	0.25	0.50
WDS	8	0	4	0	0	0	0	0	0	0	0	0	1.00	2.00
TOTAL COVER			35			40			21			50	36.50	12.07

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	21			21			21			21				
Treatment	T (15")			T (15")			T (15")			T (15")				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	1			12			13			19			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	8	9	8.5	12	22	17	7	3	5	10	13	11.5	10.50	5.08
NSG	25	55	40	50	20	35	12	25	18.5	25	28	26.5	30.00	9.48
LGS	2	0	1	3	2	2.5	3	2	2.5	8	10	9	3.75	3.57
WDS	15	5	10	0	12	6	0	0	0	0	1	0.5	4.13	4.77
TOTAL COVER			59.5			60.5			26			47.5	48.38	16.04

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	21			21			21			21				
Treatment	T (6")			T (6")			T (6")			T (6")				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	1			12			13			19				
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	treatment mean	treatment std.dev.
Plant Species														
SG	25	17	21	30	7	18.5	6	10	8	15	7	11	14.63	6.13
NSG	3	40	21.5	30	50	40	12	25	18.5	25	25	25	26.25	9.54
LGS	6	5	5.5	6	1	3.5	7	1	4	23	28	25.5	9.63	10.62
WDS	0	12	6	0	0	0	1	0	0.5	7	6	6.5	3.25	3.48
TOTAL COVER			54			62			31			68	53.75	16.21

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	21			21			21			21				
Treatment	A			A			A			A				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	5			9			15			23			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	15	8	11.5	1	1	1	7	2	4.5	6	6	6	5.75	4.37
NSG	7	18	12.5	12	15	13.5	2	0	1	10	14	12	9.75	5.87
LGS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			24			14.5			5.5			18	15.50	7.74

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	21			21			21			21				
Treatment	I			I			I			I				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	4			11			14			24			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	3	1	2	1	2	1.5	4	2	3	12	3	7.5	3.50	2.74
NSG	5	3	4	8	3	5.5	5	5	5	5	7	6	5.13	0.85
LGS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			6			7			8			13.5	8.63	3.35

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	21			21			21			21				
Treatment	C			C			C			C				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	6			10			18			20			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG	1	0	0.5	0	0	0	0	0	0	0	0	0	0.13	0.25
LGS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			0.5			0			0			0	0.13	0.25

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	21			21			21			21				
Treatment	D			D			D			D				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	2			7			17			21			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	6	4	5	13	10	11.5	18	28	23	5	4	4.5	11.00	8.61
NSG	12	30	21	7	10	8.5	3	1	2	3	3	3	8.63	8.73
LGS	0	0	0	0	0	0	1	0	0.5	0	0	0	0.13	0.25
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			26			20			25.5			7.5	19.75	8.61

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	21			21			21			21				
Treatment	T (15")			T (15")			T (15")			T (15")				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	1			12			13			19			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	11	22	16.5	10	8	9	12	12	12	8	10	9	11.63	3.54
NSG	35	38	36.5	17	50	33.5	17	15	16	25	18	21.5	26.88	9.72
LGS	0	6	3	1	2	1.5	4	10	7	6	6	6	4.38	2.56
WDS	0	20	10	10	5	7.5	10	40	25	0	3	1.5	11.00	9.99
TOTAL COVER			66			51.5			60			38	53.88	12.14

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	21			21			21			21				
Treatment	T (6")			T (6")			T (6")			T (6")				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	1			12			13			19				
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	treatment mean	treatment std.dev.
Plant Species														
SG	22	30	26	5	5	5	30	9	19.5	20	12	16	16.63	8.79
NSG	40	35	37.5	45	40	42.5	40	10	25	20	30	25	32.50	8.90
LGS	1	2	1.5	7	8	7.5	6	28	17	13	12	12.5	9.63	6.66
WDS	0	3	1.5	2	10	6	1	0	0.5	0	3	1.5	2.38	2.46
TOTAL COVER			66.5			61			62			55	61.13	4.73

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	21			21			21			21				
Treatment	A			A			A			A				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	5			9			15			23			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	7	3	5	1	1	1	8	14	11	10	20	15	8.00	6.22
NSG	5	18	11.5	11	15	13	4	2	3	13	15	14	10.38	5.02
LGS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			16.5			14			14			29	18.38	7.18

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	21			21			21			21				
Treatment	I			I			I			I				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	4			11			14			24			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	4	2	3	2	2	2	1	3	2	22	10	16	5.75	6.85
NSG	12	10	11	5	6	5.5	3	5	4	7	18	12.5	8.25	4.13
LGS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			14			7.5			6			28.5	14.00	10.27

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	21			21			21			21				
Treatment	C			C			C			C				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	6			10			18			20			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	0	0	0	1	0	0.5	0	0	0	0	0	0	0.13	0.25
NSG	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
LGS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			0			0.5			0			0	0.13	0.25

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	21			21			21			21				
Treatment	D			D			D			D				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	2			7			17			21			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	13	22	17.5	1	6	3.5	26	13	19.5	17	32	24.5	16.25	9.00
NSG	25	8	16.5	6	4	5	4	5	4.5	7	10	8.5	8.63	5.54
LGS	0	0	0	0	0	0	1	1	1	0	0	0	0.25	0.50
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			34			8.5			25			33	25.13	11.79

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	27			27			27			27				
Treatment	A			A			A			A				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	4			7			17			19			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	20	25	22.5	18	70	44	12	13	12.5	15	10	12.5	22.88	14.85
NSG	7	15	11	15	15	15	45	15	30	1	0	0.5	14.13	12.22
LGS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS	0	0	0	0	0	0	0	0	0	1	0	0.5	0.13	0.25
TOTAL COVER			33.5			59			42.5			13.5	37.13	18.96

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	27			27			27			27				
Treatment	C			C			C			C				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	2			10			14			21			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	28	15	21.5	0	0	0	0	0	0	0	0	0	5.38	10.75
NSG	2	2	2	0	0	0	10	12	11	3	0	1.5	3.63	4.99
LGS	1	0	0.5	0	0	0	0	0	0	0	0	0	0.13	0.25
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			24			0			11			1.5	9.13	11.05

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	27			27			27			27				
Treatment	X			X			X			X				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	1			9			13			20			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	15	7	11	15	20	17.5	65	15	40	1	1	1	17.38	16.54
NSG	18	7	12.5	10	7	8.5	2	0	1	0	0	0	5.50	6.01
LGS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			23.5			26			41			1	22.88	16.50

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	27			27			27			27				
Treatment	D			D			D			D				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	5			11			16			22			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	35	12	23.5	5	12	8.5	4	25	14.5	25	8	16.5	15.75	6.18
NSG	15	10	12.5	20	25	22.5	50	25	37.5	28	25	26.5	24.75	10.34
LGS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			36			31			52			43	40.50	9.11

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	27			27			27			27				
Treatment	A			A			A			A				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	4			7			17			19			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	12	7	9.5	30	35	32.5	20	7	13.5	5	5	5	15.13	12.09
NSG	20	35	27.5	12	20	16	25	15	20	0	0	0	15.88	11.61
LGS	0	0	0	0	7	3.5	0	1	0.5	0	0	0	1.00	1.68
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			37			52			34			5	32.00	19.65

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	27			27			27			27				
Treatment	C			C			C			C				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	2			10			14			21			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	1	5	3	0	0	0	1	0	0.5	0	0	0	0.88	1.44
NSG	1	0	0.5	1	1	1	2	1	1.5	0	0	0	0.75	0.65
LGS	0	0	0	0	1	0.5	0	0	0	0	0	0	0.13	0.25
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			3.5			1.5			2			0	1.75	1.44

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	27			27			27			27				
Treatment	X			X			X			X				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	1			9			13			20			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	23	5	14	33	6	19.5	22	14	18	5	7	6	14.38	6.05
NSG	20	25	22.5	5	15	10	5	0	2.5	2	0	1	9.00	9.82
LGS	0	0	0	0	0	0	3	0	1.5	0	0	0	0.38	0.75
WDS	1	0	0.5	0	0	0	2	0	0	0	0	0	0.13	0.25
TOTAL COVER			37			29.5			22			7	23.88	12.81

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	27			27			27			27				
Treatment	D			D			D			D				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	5			11			16			22			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	25	28	26.5	10	2	6	12	10	11	9	3	6	12.38	9.71
NSG	15	35	25	35	10	22.5	20	25	22.5	30	35	32.5	25.63	4.73
LGS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			51.5			28.5			33.5			38.5	38.00	9.88

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	33			33			33			33				
Treatment	T (15")			T (15")			T (15")			T (15")				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	6			9			14			19			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	0	10	5	10	6	8	12	0	6	10	25	17.5	9.13	5.72
NSG	2	25	13.5	40	25	32.5	30	15	22.5	25	7	16	21.13	8.48
LGS	25	0	12.5	12	27	19.5	15	12	13.5	15	50	32.5	19.50	9.20
WDS	0	40	20	0	0	0	0	0	0	15	6	10.5	7.63	9.62
TOTAL COVER			51			60			42			76.5	57.38	14.72

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	33			33			33			33				
Treatment	T (6")			T (6")			T (6")			T (6")				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	6			9			14			19			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	8	5	6.5	5	7	6	6	8	7	5	30	17.5	9.25	5.52
NSG	25	6	15.5	40	25	32.5	25	0	12.5	30	15	22.5	20.75	8.88
LGS	34	51	42.5	12	5	8.5	25	20	22.5	65	50	57.5	32.75	21.61
WDS	12	3	7.5	0	0	0	0	0	0	6	0	3	2.63	3.54
TOTAL COVER			72			47			42			100.5	65.38	26.84

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	33			33			33			33				
Treatment	A			A			A			A				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	5			7			18			21			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	1	1	1	0	0	0	1	0	0.5	0	0	0	0.38	0.48
NSG	6	12	9	5	3	4	1	1	1	1	0	0.5	3.63	3.90
LGS	1	0	0.5	1	1	1	0	0	0	0	1	0.5	0.50	0.41
WDS	5	0	2.5	8	8	8	0	17	8.5	0	2	1	5.00	3.81
TOTAL COVER			13			13			10			2	9.50	5.20

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	33			33			33			33				
Treatment	I			I			I			I				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	1			10			13			22			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	5	0	2.5	0	0	0	1	1	1	1	0	0.5	1.00	1.08
NSG	25	25	25	12	10	11	8	10	9	2	2	2	11.75	9.64
LGS	0	0	0	0	1	0.5	0	0	0	0	0	0	0.13	0.25
WDS	0	0	0	0	0	0	0	6	3	5	2	3.5	1.63	1.89
TOTAL COVER			27.5			11.5			13			6	14.50	9.17

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	33			33			33			33				
Treatment	C			C			C			C				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	4			12			16			20			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG	0	0	0	0	0	0	1	0	0.5	0	0	0	0.13	0.25
LGS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS	12	6	9	5	6	5.5	0	17	8.5	0	0	0	5.75	4.13
TOTAL COVER			9			5.5			9			0	5.88	4.25

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	33			33			33			33				
Treatment	D			D			D			D				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	2			8			17			23				
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	treatment mean	treatment std.dev.
Plant Species														
SG	35	40	37.5	1	1	1	0	0	0	3	1	2	10.13	18.27
NSG	40	8	24	15	13	14	0	0	0	10	10	10	12.00	9.93
LGS	1	0	0.5	6	1	3.5	0	15.5	7.75	0	3.5	1.75	3.38	3.17
WDS	0	0	0	6	6	6	3	1	2	2	1	1.5	2.38	2.56
TOTAL COVER			62			24.5			9.75			15.25	27.88	23.55

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	33			33			33			33				
Treatment	T (15")			T (15")			T (15")			T (15")				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	6			9			14			19			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	20	20	20	25	45	35	15	8	11.5	30	65	47.5	28.50	15.96
NSG	10	20	15	60	40	50	25	25	25	1	5	3	23.25	19.97
LGS	50	22	36	0	0	0	15	27	21	33	55	44	25.25	19.35
WDS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
TOTAL COVER			71			85			57.5			94.5	77.00	16.19

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	33			33			33			33				
Treatment	A			A			A			A				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	5			7			18			21				
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	treatment mean	treatment std.dev.
Plant Species														
SG	2	1	1.5	10	4	7	1	4	2.5	0	1	0.5	2.88	2.87
NSG	1	2	1.5	12	6	9	2	1	1.5	0	0	0	3.00	4.06
LGS	0	0	0	0	0	0	0	0	0	0	1	0.5	0.13	0.25
WDS	0	1	0.5	0	10	5	1	2	1.5	5	0	2.5	2.38	1.93
TOTAL COVER			3.5			21			5.5			3.5	8.38	8.47

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	33			33			33			33				
Treatment	I			I			I			I				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	1			10			13			22			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	15	18	16.5	10	1	5.5	35	7	21	1	1	1	11.00	9.32
NSG	20	8	14	11	15	13	5	20	12.5	4	1	2.5	10.50	5.37
LGS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS	0	0	0	0	0	0	2	8	5	0	0	0	1.25	2.50
TOTAL COVER			30.5			18.5			38.5			3.5	22.75	15.24

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	33			33			33			33				
Treatment	C			C			C			C				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	4			12			16			20			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG	0	0	0	0	0	0	1	0	0.5	0	0	0	0.13	0.25
LGS	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS	10	13	11.5	1	1	1	3	12	7.5	1	0	0.5	5.13	5.31
TOTAL COVER			11.5			1			8			0.5	5.25	5.39

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

STARS VEGETATION COVER
1989 Data (% Aerial Cover)

Site	33			33			33			33				
Treatment	D			D			D			D				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	2			8			17			23			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
SG	40	45	42.5	15	25	20	15	0	7.5	10	38	24	23.50	14.49
NSG	20	30	25	8	22	15	4	1	2.5	4	5	4.5	11.75	10.40
LGS	0	0	0	0	0	0	0	0	0	1	1	1	0.25	0.50
WDS	1	0	0.5	3	27	15	0	5	2.5	1	1	1	4.75	6.89
TOTAL COVER			68			50			12.5			30.5	40.25	24.02

SG = Seeded Grasses
NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs

APPENDIX D3

AERIAL COVER 1990

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	2			2			2			2				
Treatment	T			T			T			T				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	1			7			18			19			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag el	0	0	0	0	0	0	3.5	0	1.75	38	0	19	5.19	9.25
Ag in	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag ri	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Di sp	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	62	38	50	15.5	15.5	15.5	0.5	15.5	8	0.5	15.5	8	20.38	20.06
Total			50			15.5			9.75			27	25.56	17.80
Forbs														

LGS*	3.5	3.5	3.5	15.5	0	7.75	98	98	98	0.5	15.5	8	29.31	45.84
WDS*	0	0	0	0	0	0	0	0	0	0	3.5	1.75	0.44	0.88
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			3.5			7.75			98			9.75	29.75	45.57
TOTAL COVER			53.5			23.25			107.75			36.75	55.31	37.08

---

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	2			2			2			2				
Treatment	A			A			A			A				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	2			8			14			22			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag el	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag in	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag ri	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Di sp	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0.5	0	0.25	0	0	0	0.06	0.13
Total			0			0			0.25			0	0.06	0.13
Forbs														

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0			0			0			0	0.00	0.00
TOTAL COVER			0			0			0.25			0	0.06	0.13

---

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	2			2			2			2				
Treatment	I			I			I			I				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	3			11			13			23			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag el	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag in	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag ri	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Di sp	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	3.5	3.5	3.5	0	0	0	3.5	0.5	2	0	0	0	1.38	1.70
Total			3.5			0			2			0	1.38	1.70
Forbs														

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0			0			0			0	0.00	0.00
TOTAL COVER			3.5			0			2			0	1.38	1.70

---

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	2			2			2			2				
Treatment	C			C			C			C				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	4			12			15			20			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag el	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag in	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag ri	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Di sp	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0.5	0	0.25	0	0	0	0	0	0	0	0	0	0.06	0.13
Total			0.25			0			0			0	0.06	0.13
Forbs														

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0			0			0			0	0.00	0.00
TOTAL COVER			0.25			0			0			0	0.06	0.13

---

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	2			2			2			2				
Treatment	X			X			X			X				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	5			9			17			21			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag el	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag in	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag ri	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Di sp	0	0.5	0.25	0	0	0	0	0	0	0	0	0	0.06	0.13
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	15.5	15.5	15.5	0	0	0	0.5	0.5	0.5	0	0	0	4.00	7.67
Total			15.75			0			0.5			0	4.06	7.80
Forbs														

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0.5	0.25	0	0	0	0	0	0	0	0	0	0.06	0.13
Total			0.25			0			0			0	0.06	0.13
TOTAL COVER			16			0			0.5			0	4.13	7.92

---

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	2			2			2			2				
Treatment	D			D			D			D				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	6			10			16			24			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag el	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag in	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag ri	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Di sp	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	15.5	3.5	9.5	0	0	0	0.5	0.5	0.5	0	0.5	0.25	2.56	4.63
Total			9.5			0			0.5			0.25	2.56	4.63
Forbs														

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	1	0.5	0.75	0	0	0	0	0.5	0.25	0	0	0	0.25	0.35
Total			0.75			0			0.25			0	0.25	0.35
TOTAL COVER			10.25			0			0.75			0.25	2.81	4.97

---

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	2			2			2			2				
Treatment	T			T			T			T				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	1			7			18			19			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag tra	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag tri	0.5	0	0.25	0	0	0	0	0	0	0	0	0	0.06	0.13
El ju	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Si hy	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	3.5	0.5	2	3.5	3.5	3.5	0.5	0.5	0.5	3.5	3.5	3.5	2.38	1.44
Total			2.25			3.5			0.5			3.5	2.44	1.42
Forbs														

LGS*	38	85.5	61.75	85.5	85.5	85.5	98	98.5	98.25	62	85.5	73.75	79.81	15.66
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0.5	0.25	0	0	0	0.06	0.13
Total			61.75			85.5			98.5			73.75	79.88	15.75
TOTAL COVER			64			89			99			77.25	82.31	15.10

---

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	2			2			2			2				
Treatment	A			A			A			A				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	2			8			14			22			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag tra	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag tri	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
El ju	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Si hy	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0.5	0.25	0	0	0	3.5	3.5	3.5	0.94	1.71
Total			0			0.25			0			3.5	0.94	1.71
Forbs														

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0			0			0			0	0.00	0.00
TOTAL COVER			0			0.25			0			3.5	0.94	1.71

---

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	2			2			2			2				
Treatment	I			I			I			I				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	3			11			13			23			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag tra	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag tri	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
El ju	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Si hy	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	3.5	0.5	2	0	0	0	0.50	1.00
Total			0			0			2			0	0.50	1.00
Forbs														

LGS*	0	0	0	0	0	0	0.5	0.5	0.5	0	0	0	0.13	0.25
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0			0			0.5			0	0.13	0.25
TOTAL COVER			0			0			2.5			0	0.63	1.25

---

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	2			2			2			2				
Treatment	C			C			C			C				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	4			12			15			20			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag tra	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag tri	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
El ju	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Si hy	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0			0			0			0	0.00	0.00
Forbs														

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0			0			0			0	0.00	0.00
TOTAL COVER			0			0			0			0	0.00	0.00

---

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	2			2			2			2				
Treatment	X			X			X			X				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	5			9			17			21			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag tra	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag tri	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
El ju	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Si hy	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	3.5	1.75	0	0	0	0.44	0.88
Total			0			0			1.75			0	0.44	0.88
Forbs														

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0			0			0			0	0.00	0.00
TOTAL COVER			0			0			1.75			0	0.44	0.88

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	2			2			2			2				
Treatment	D			D			D			D				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	6			10			16			24			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag tra	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag tri	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
El ju	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Si hy	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0.5	0.25	0	0	0	0.5	0	0.25	0	0	0	0.13	0.14
Total			0.25			0			0.25			0	0.13	0.14
Forbs														

LGS*	3.5	3.5	3.5	0	0	0	0.5	0	0.25	0	0	0	0.94	1.71
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			3.5			0			0.25			0	0.94	1.71
TOTAL COVER			3.75			0			0.5			0	1.06	1.81

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	7			7			7			7				
Treatment	T			T			T			T				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	6			12			13			19			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag cr	0	0	0	0.5	0	0.25	0	0	0	0	0	0	0.06	0.13
Ag da	3.5	3.5	3.5	15.5	0.5	8	0	0	0	0	0	0	2.88	3.79
Ca lo	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
El an	0	0.5	0.25	3.5	0	1.75	0	0	0	0	0	0	0.50	0.84
Fe ov	0	3.5	1.75	0	0	0	0	0	0	0	0	0	0.44	0.88
Po co	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0.5	0	0.25	0	3.5	1.75	0.5	3.5	2	0.5	0.5	0.5	1.13	0.88
Total			5.75			11.75			2			0.5	5.00	5.01
Forbs														

LGS*	15.5	15.5	15.5	15.5	38	26.75	62	85.5	73.75	85.5	98	91.75	51.94	36.62
WDS*	0	0	0	0	0	0	15.5	0	7.75	3.5	0	1.75	2.38	3.68
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			15.5			26.75			81.5			93.5	54.31	38.91
TOTAL COVER			21.25			38.5			83.5			94	59.31	34.98

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	7			7			7			7				
Treatment	A			A			A			A				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	1			10			16			23			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag da	15.5	0.5	8	3.5	3.5	3.5	0.5	0.5	0.5	3.5	0.5	2	3.50	3.24
Br te	0	0	0	0	0.5	0.25	0	0	0	0	0	0	0.06	0.13
Ca lo	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
De ca	0	62	31	0	0	0	0	0	0	0	0	0	7.75	15.50
El an	3.5	0	1.75	0.5	0.5	0.5	0.5	0	0.25	3.5	0.5	2	1.13	0.88
Fe ov	0	0	0	0	0.5	0.25	0	0	0	0	0.5	0.25	0.13	0.14
Po co	0	0	0	0	0	0	0	0	0	0	0.5	0.25	0.06	0.13
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.25	0.29
Total			40.75			4.5			1.25			5	12.88	18.66
Forbs														

LGS*	38	15.5	26.75	15.5	15.5	15.5	0.5	0	0.25	3.5	0.5	2	11.13	12.45
WDS*	0.5	0	0.25	0	0	0	0	0	0	0	0	0	0.06	0.13
UNK*	0	0.5	0.25	0	0	0	0	0	0	0	0	0	0.06	0.13
Total			27.25			15.5			0.25			2	11.25	12.66
TOTAL COVER			68			20			1.5			7	24.13	30.26

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	7			7			7			7				
Treatment	I			I			I			I				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	5			8			18			22			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														
Ag da	0.5	38	19.25	0	0	0	3.5	3.5	3.5	3.5	3.5	3.5	6.56	8.62
Ca lo	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
El an	15.5	3.5	9.5	0	0	0	3.5	0	1.75	0.5	15.5	8	4.81	4.64
Fe ov	0	0	0	0	0	0	0	3.5	1.75	0	0	0	0.44	0.88
Po co	0.5	0	0.25	0	0	0	0	0	0	0	0	0	0.06	0.13
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0.5	0	0.25	0	0	0	0.06	0.13
Total			29			0			7.25			11.5	11.94	12.33
Forbs														
LGS*	38	15.5	26.75	0	0	0	0	0	0	0.5	0	0.25	6.75	13.33
WDS*	0	0.5	0.25	0	0	0	0	0	0	0	0	0	0.06	0.13
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			27			0			0			0.25	6.81	13.46
TOTAL COVER			56			0			7.25			11.75	18.75	25.30

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	7			7			7			7				
Treatment	C			C			C			C				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	2			11			17			21			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag da	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ca lo	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
El an	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Fe ov	0	0	0	0.5	0	0.25	0.5	0	0.25	0	0	0	0.13	0.14
Po co	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0.5	0.25	0.06	0.13
Total			0			0.25			0.25			0.25	0.19	0.13
Forbs														

LGS*	0	0	0	0	0	0	0.5	0	0.25	0	0	0	0.06	0.13
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0			0			0.25			0	0.06	0.13
TOTAL COVER			0			0.25			0.5			0.25	0.25	0.20

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	7			7			7			7				
Treatment	D			D			D			D				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	3			9			14			20			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														
Ag da	15.5	15.5	15.5	3.5	15.5	9.5	0.5	0	0.25	0.5	3.5	2	6.81	7.05
Ca lo	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
El an	0.5	0.5	0.5	38	3.5	20.75	0.5	3.5	2	3.5	15.5	9.5	8.19	9.25
Fe ov	0	0	0	0	0	0	0	0.5	0.25	0	0	0	0.06	0.13
Po co	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0.5	0	0.25	3.5	0	1.75	0.50	0.84
Total			16			30.25			2.75			13.25	15.56	11.33
Forbs														
LGS*	3.5	15.5	9.5	62	15.5	38.75	0.5	0.5	0.5	15.5	0.5	8	14.19	16.84
WDS*	0	0	0	0	0	0	0	0	0	0	1	0.5	0.13	0.25
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			9.5			38.75			0.5			8.5	14.31	16.78
TOTAL COVER			25.5			69			3.25			21.75	29.88	27.84

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	7			7			7			7				
Treatment	T			T			T			T				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	6			12			13			19			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag da	0.5	0	0.25	0	0.5	0.25	0	0	0	0	0.5	0.25	0.19	0.13
De ca	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
El ci	0	0.5	0.25	3.5	0.5	2	0	0	0	0	0	0	0.56	0.97
El gi	0	0.5	0.25	3.5	0.5	2	0	0	0	0	0	0	0.56	0.97
Fe lo	0.5	0	0.25	0	0	0	0	0	0	0	0	0	0.06	0.13
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0.5	0	0.25	0.5	0	0.25	0.5	3.5	2	0.5	0.5	0.5	0.75	0.84
Total			1.25			4.5			2			0.75	2.13	1.66
Forbs														

LGS*	38	16	27	62	15.5	38.75	62	98	80	98	85.5	91.75	59.38	31.34
WDS*	0	3.5	1.75	0	0	0	0.5	0	0.25	0.5	15.5	8	2.50	3.75
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			28.75			38.75			80.25			99.75	61.88	33.69
TOTAL COVER			30			43.25			82.25			100.5	64.00	32.92

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	7			7			7			7				
Treatment	A			A			A			A				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	1			10			16			23			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag da	0.5	15.5	8	15.5	15.5	15.5	0	0.5	0.25	3.5	0.5	2	6.44	6.89
Ag te	0	0	0	0	0.5	0.25	0	0	0	0	0	0	0.06	0.13
De ca	38	0	19	0	0	0	0	0	0	0	0	0	4.75	9.50
El ci	0	0	0	0	0	0	0.5	0	0.25	0	0.5	0.25	0.13	0.14
El gi	3.5	15.5	9.5	15.5	85.5	50.5	0.5	3.5	2	0.5	0	0.25	15.56	23.63
Fe lo	0	0	0	0	0	0	0	0	0	0	0.5	0.25	0.06	0.13
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	3.5	0	1.75	0.5	0.5	0.5	0.56	0.83
Total			36.5			66.25			4.25			3.25	27.56	30.06
Forbs														

LGS*	0	0	0	62	15.5	38.75	0	0	0	0	0	0	9.69	19.38
WDS*	0.5	0	0.25	0.5	0.5	0.5	0	0	0	0	0	0	0.19	0.24
UNK*	0	0.5	0.25	0.5	0	0.25	0	0	0	0	0	0	0.13	0.14
Total			0.5			39.5			0			0	10.00	19.67
TOTAL COVER			37			105.75			4.25			3.25	37.56	48.09

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	7			7			7			7				
Treatment	I			I			I			I				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	5			8			18			22			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag da	0	0.5	0.25	0.5	0	0.25	3.5	3.5	3.5	0	0	0	1.00	1.67
De ca	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
El ci	0	0	0	0	0	0	3.5	0	1.75	0.5	0.5	0.5	0.56	0.83
El gi	0.5	0	0.25	0	0	0	3.5	3.5	3.5	3.5	0.5	2	1.44	1.64
Fe lo	0	0	0	0	0	0	3.5	0	1.75	0	0	0	0.44	0.88
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	3.5	1.75	0	3.5	1.75	0.88	1.01
Total			0.5			0.25			12.25			4.25	4.31	5.60
Forbs														

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0			0			0			0	0.00	0.00
TOTAL COVER			0.5			0.25			12.25			4.25	4.31	5.60

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	7			7			7			7				
Treatment	C			C			C			C				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	2			11			17			21			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag da	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
De ca	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
El ci	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
El gi	0	0	0	0	0	0	0	0.5	0.25	0	0	0	0.06	0.13
Fe lo	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0.5	0	0.25	0	0	0	0	0.5	0.25	0	0	0	0.13	0.14
Total			0.25			0			0.5			0	0.19	0.24
Forbs														

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	0	0	0	0	0	0	0	0.5	0.25	0	0	0	0.06	0.13
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0			0			0.25			0	0.06	0.13
TOTAL COVER			0.25			0			0.75			0	0.25	0.35

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	7			7			7			7				
Treatment	D			D			D			D				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	3			9			14			20				
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	treatment mean	treatment std.dev.
Plant Species														
Grasses														

Ag da	0.5	3.5	2	15.5	38	26.75	0.5	0.5	0.5	0.5	3.5	2	7.81	12.64
De ca	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
El ci	0.5	0	0.25	0	0.5	0.25	0	3.5	1.75	0	0	0	0.56	0.80
El gi	15.5	38	26.75	3.5	15.5	9.5	15.5	0	7.75	38	62	50	23.50	19.64
Fe lo	3.5	0	1.75	0	0	0	0.5	0	0.25	0	0	0	0.50	0.84
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0.5	0.25	0	0	0	0.06	0.13
Total			30.75			36.5			10.5			52	32.44	17.16
Forbs														

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	0.5	0	0.25	0	0	0	0	0.5	0.25	0	0	0	0.13	0.14
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0.25			0			0.25			0	0.13	0.14
TOTAL COVER			31			36.5			10.75			52	32.56	17.04

---

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	21			21			21			21				
Treatment	T			T			T			T				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	1			12			13			19			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag cr	0	0	0	3.5	3.5	3.5	15.5	0.5	8	15.5	0	7.75	4.81	3.82
Ag el	15.5	3.5	9.5	3.5	3.5	3.5	0	15.5	7.75	0	0.5	0.25	5.25	4.18
Ag ri	0.5	3.5	2	3.5	0.5	2	0.5	0	0.25	0	0.5	0.25	1.13	1.01
Di sp	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0.5	0.25	0	0	0	0	0	0	15.5	15.5	15.5	3.94	7.71
Total			11.75			9			16			23.75	15.13	6.43
Forbs														

LGS*	0.5	15.5	8	3.5	15.5	9.5	3.5	0.5	2	15.5	15.5	15.5	8.75	5.55
WDS*	3.5	3.5	3.5	0.5	0	0.25	0.5	0	0.25	0	0	0	1.00	1.67
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			11.5			9.75			2.25			15.5	9.75	5.55
TOTAL COVER			23.25			18.75			18.25			39.25	24.88	9.84

---

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	21			21			21			21				
Treatment	A			A			A			A				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	5			9			15			23			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag cr	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag el	15.5	38	26.75	0.5	0	0.25	15.5	3.5	9.5	3.5	15.5	9.5	11.50	11.06
Ag ri	3.5	0	1.75	0	0	0	0	0	0	0	0	0	0.44	0.88
Di sp	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0.5	0.25	0.5	0	0.25	0.5	0.5	0.5	15.5	3.5	9.5	2.63	4.58
Total			28.75			0.5			10			19	14.56	12.10
Forbs														

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0			0			0			0	0.00	0.00
TOTAL COVER			28.75			0.5			10			19	14.56	12.10

---

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	21			21			21			21				
Treatment	I			I			I			I				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	4			11			14			24			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag cr	0	0	0	0.5	0	0.25	0	0	0	0	0	0	0.06	0.13
Ag el	3.5	15.5	9.5	15.5	0.5	8	0.5	0.5	0.5	15.5	38	26.75	11.19	11.10
Ag ri	0.5	0.5	0.5	3.5	0	1.75	0	0	0	0.5	0	0.25	0.63	0.78
Di sp	0	3.5	1.75	0	0	0	0	0	0	0	0	0	0.44	0.88
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0.5	0.5	0.5	0.5	0	0.25	3.5	3.5	3.5	1.06	1.64
Total			11.75			10.5			0.75			30.5	13.38	12.43
Forbs														

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0			0			0			0	0.00	0.00
TOTAL COVER			11.75			10.5			0.75			30.5	13.38	12.43

---

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	21			21			21			21				
Treatment	C			C			C			C				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	6			10			18			20			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag cr	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag el	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag ri	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Di sp	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0			0			0			0	0.00	0.00
Forbs														

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0			0			0			0	0.00	0.00
TOTAL COVER			0			0			0			0	0.00	0.00

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	21			21			21			21				
Treatment	D			D			D			D				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	2			7			17			21			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														
Ag cr	0.5	0	0.25	0	0	0	0	0	0	0	0	0	0.06	0.13
Ag el	15.5	38	26.75	38	3.5	20.75	38	15.5	26.75	3.5	15.5	9.5	20.94	8.13
Ag ri	3.5	0.5	2	0	3.5	1.75	0.5	0.5	0.5	3.5	0	1.75	1.50	0.68
De ca	3.5	0	1.75	0	0	0	0	0	0	0	0	0	0.44	0.88
Di sp	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0.5	0.25	3.5	3.5	3.5	0	0	0	0.94	1.71
Total			30.75			22.75			30.75			11.25	23.88	9.22
Forbs														
LGS*	0	0	0	0	0	0	0	0.5	0.25	0	0	0	0.06	0.13
WDS*	0	0.5	0.25	0.5	0.5	0.5	0	0	0	0	0	0	0.19	0.24
UNK*	0.5	0	0.25	0	0	0	0	0	0	0.5	0	0.25	0.13	0.14
Total			0.5			0.5			0.25			0.25	0.38	0.14
TOTAL COVER			31.25			23.25			31			11.5	24.25	9.28

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	21			21			21			21				
Treatment	T			T			T			T				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	1			12			13			19			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag de	15.5	15.5	15.5	38	0.5	19.25	3.5	15.5	9.5	3.5	15.5	9.5	13.44	4.80
Ag in	3.5	15.5	9.5	0	0	0	0.5	0.5	0.5	0.5	0	0.25	2.56	4.63
Ag tri	3.5	0	1.75	0	0	0	0.5	3.5	2	0.5	0	0.25	1.00	1.02
Br in	0	0	0	0	0	0	0	3.5	1.75	0	0	0	0.44	0.88
El ju	0	0	0	0	3.5	1.75	0	0	0	0.5	3.5	2	0.94	1.09
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0.5	0	0.25	3.5	0.5	2	0	0	0	0	0	0	0.56	0.97
Total			27			23			13.75			12	18.94	7.22
Forbs														

LGS*	38	3.5	20.75	3.5	3.5	3.5	3.5	15.5	9.5	3.5	38	20.75	13.63	8.58
WDS*	3.5	0	1.75	0	0.5	0.25	0	0	0	0	0.5	0.25	0.56	0.80
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			22.5			3.75			9.5			21	14.19	9.06
TOTAL COVER			49.5			26.75			23.25			33	33.13	11.64

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	21			21			21			21				
Treatment	A			A			A			A				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	5			9			15			23			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag de	0	0	0	0	0	0	0	0	0	0.5	0	0.25	0.06	0.13
Ag in	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag tri	0	15.5	7.75	0	0	0	0	0	0	0	0	0	1.94	3.88
El ju	3.5	3.5	3.5	0.5	0.5	0.5	3.5	15.5	9.5	62	62	62	18.88	28.99
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	3.5	0	1.75	0	0	0	0	0.5	0.25	0.5	0	0.25	0.56	0.80
Total			13			0.5			9.75			62.5	21.44	27.88
Forbs														

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0			0			0			0	0.00	0.00
TOTAL COVER			13			0.5			9.75			62.5	21.44	27.88

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	21			21			21			21				
Treatment	I			I			I			I				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	4			11			14			24			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag de	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag in	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag tri	3.5	0.5	2	0.5	0	0.25	0	0	0	0	0	0	0.56	0.97
El ju	15.5	15.5	15.5	0.5	0	0.25	0	0	0	15.5	15.5	15.5	7.81	8.88
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0.5	0.5	0.5	0	0	0	3.5	3.5	3.5	1.00	1.68
Total			17.5			1			0			19	9.38	10.27
Forbs														

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	0.5	0	0.25	0	0	0	0	0	0	0	0	0	0.06	0.13
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0.25			0			0			0	0.06	0.13
TOTAL COVER			17.75			1			0			19	9.44	10.34

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	21			21			21			21				
Treatment	C			C			C			C				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	6			10			18			20			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag de	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag in	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag tri	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
El ju	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0			0			0			0	0.00	0.00
Forbs														

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0			0			0			0	0.00	0.00
TOTAL COVER			0			0			0			0	0.00	0.00

---

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	21			21			21			21				
Treatment	D			D			D			D				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	2			7			17			21			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														
Ag de	3.5	0.5	2	0.5	0	0.25	0	3.5	1.75	0	3.5	1.75	1.44	0.80
Ag in	3.5	0	1.75	0	0	0	0.5	0	0.25	0	0.5	0.25	0.56	0.80
Ag tri	15.5	0.5	8	0	0	0	0	0	0	0	0	0	2.00	4.00
El ju	15.5	15.5	15.5	3.5	15.5	9.5	38	3.5	20.75	3.5	3.5	3.5	12.31	7.46
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	3.5	3.5	3.5	0	3.5	1.75	15.5	0.5	8	3.31	3.44
Total			27.25			13.25			24.5			13.5	19.63	7.30
Forbs														
LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	0	4	2	0	0	0	0	0	0	0	0	0	0.50	1.00
UNK*	0	0	0	0	0	0	0	0.5	0.25	0	0	0	0.06	0.13
Total			2			0			0.25			0	0.56	0.97
TOTAL COVER			29.25			13.25			24.75			13.5	20.19	8.08

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	27			27			27			27				
Treatment	A			A			A			A				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	4			7			17			19			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														
Ag de	3.5	15.5	9.5	3.5	3.5	3.5	38	15.5	26.75	0.5	3.5	2	10.44	11.35
Ag in	0	0	0	3.5	3.5	3.5	0	0.5	0.25	3.5	0	1.75	1.38	1.61
Ag sm	3.5	3.5	3.5	0.5	3.5	2	3.5	0	1.75	0	0.5	0.25	1.88	1.33
Ag te	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag tri	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
El an	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0.5	0.25	0	0	0	0	3.5	1.75	0.50	0.84
Total			13			9.25			28.75			5.75	14.19	10.15
Forbs														
LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	0	0	0	38	0	19	0	0	0	0.5	0	0.25	4.81	9.46
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0			19			0			0.25	4.81	9.46
TOTAL COVER			13			28.25			28.75			6	19.00	11.34

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	27			27			27			27				
Treatment	C			C			C			C				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	2			10			14			21			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag de	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag sm	3.5	0.5	2	0	0	0	0	0	0	0	0	0	0.50	1.00
Ag te	0	3.5	1.75	0	0	0	0	0	0	0	0	0	0.44	0.88
Ag tri	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
De ca	0	0	0	0	0	0	0	0	0	3.5	0	1.75	0.44	0.88
El an	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0.5	0.25	0	0	0	0.5	0	0.25	0	0	0	0.13	0.14
UNK*	0	0.5	0.25	0	0	0	3.5	0	1.75	0	0	0	0.50	0.84
Total			4.25			0			2			1.75	2.00	1.74
Forbs														

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	15.5	0	7.75	0	0	0	0	0	0	0	0	0	1.94	3.88
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			7.75			0			0			0	1.94	3.88
TOTAL COVER			12			0			2			1.75	3.94	5.45

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	27			27			27			27				
Treatment	X			X			X			X				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	1			9			13			20			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag de	3.5	15.5	9.5	3.5	3.5	3.5	15.5	38	26.75	0	0	0	9.94	11.88
Ag in	3.5	0	1.75	3.5	3.5	3.5	3.5	0	1.75	0.5	0	0.25	1.81	1.33
Ag sm	0	0	0	0	0	0	0	15.5	7.75	0	0.5	0.25	2.00	3.84
Ag tri	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
De ca	0	0	0	0	0	0	0	0	0	0.5	0	0.25	0.06	0.13
El an	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0.5	0	0.25	0	0	0	0	0	0	0.06	0.13
UNK*	3.5	0	1.75	0	0	0	0	0	0	0	0.5	0.25	0.50	0.84
Total			13			7.25			36.25			1	14.38	15.38
Forbs														

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	0	0.5	0.25	0	0	0	0	0	0	0	0	0	0.06	0.13
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0.25			0			0			0	0.06	0.13
TOTAL COVER			13.25			7.25			36.25			1	14.44	15.38

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	27			27			27			27				
Treatment	D			D			D			D				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	5			11			16			22			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag de	38	38	38	15.5	38	26.75	15.5	3.5	9.5	38	62	50	31.06	17.23
Ag in	0	0	0	0	0	0	0	0.5	0.25	0	0	0	0.06	0.13
Ag sm	0	0.5	0.25	0.5	0	0.25	0	0	0	0	0.5	0.25	0.19	0.13
Ag tri	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
El an	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0.5	0.25	0.5	0	0.25	0	0	0	0.13	0.14
Total			38.25			27.25			10			50.25	31.44	17.10
Forbs														

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	15.5	0	7.75	0	0	0	0.5	1	0.75	0	0	0	2.13	3.77
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			7.75			0			0.75			0	2.13	3.77
TOTAL COVER			46			27.25			10.75			50.25	33.56	18.20

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	27			27			27			27				
Treatment	A			A			A			A				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	4			7			17			19			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														
Ag cr	15.5	0	7.75	0.5	38	19.25	15.5	3.5	9.5	3.5	3.5	3.5	10.00	6.66
Ag el	0	3.5	1.75	38	0	19	3.5	0.5	2	3.5	3.5	3.5	6.56	8.33
Ag in	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag te	0	0	0	0	0	0	0	0	0	0.5	0	0.25	0.06	0.13
Ag tri	15.5	0	7.75	3.5	0	1.75	0	3.5	1.75	0	0	0	2.81	3.39
El ju	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0.5	0	0.25	0	0	0	3.5	0	1.75	0.5	0	0.25	0.56	0.80
Total			17.5			40			15			7.5	20.00	13.99
Forbs														
LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	0	15.5	7.75	0.5	15.5	8	0.5	0	0	0	0	0	3.94	4.55
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			7.75			8			0			0	3.94	4.55
TOTAL COVER			25.25			48			15			7.5	23.94	17.61

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	27			27			27			27				
Treatment	C			C			C			C				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	2			10			14			21			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag cr	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag el	15.5	0	7.75	0	0	0	0	0	0	0	0	0	1.94	3.88
Ag in	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
El ju	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0.5	0.25	0	0.5	0.25	0.5	0.5	0.5	0	0	0	0.25	0.20
UNK*	0	3.5	1.75	0	0	0	0.5	0	0.25	0	0	0	0.50	0.84
Total			9.75			0.25			0.75			0	2.69	4.72
Forbs														

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0			0			0			0	0.00	0.00
TOTAL COVER			9.75			0.25			0.75			0	2.69	4.72

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	27			27			27			27				
Treatment	X			X			X			X				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	1			9			13			20			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag cr	15.5	3.5	9.5	15.5	15.5	15.5	3.5	0	1.75	0	0	0	6.69	7.18
Ag el	3.5	15.5	9.5	15.5	0.5	8	15.5	38	26.75	15.5	15.5	15.5	14.94	8.52
Ag in	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag tri	0	0.5	0.25	15.5	0	7.75	0	0.5	0.25	0	0	0	2.06	3.79
El ju	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	3.5	1.75	0	0	0	0.5	0	0.25	0.50	0.84
Total			19.25			33			28.75			15.75	24.19	8.04
Forbs														

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0			0			0			0	0.00	0.00
TOTAL COVER			19.25			33			28.75			15.75	24.19	8.04

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	27			27			27			27				
Treatment	D			D			D			D				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	5			11			16			22			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														
Ag cr	15.5	38	26.75	0.5	0.5	0.5	3.5	15.5	9.5	38	38	38	18.69	16.86
Ag el	3.5	0	1.75	3.5	0	1.75	0	15.5	7.75	3.5	0	1.75	3.25	3.00
Ag in	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag tri	0	0	0	3.5	0	1.75	0	3.5	1.75	0	0	0	0.88	1.01
El ju	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	3.5	1.75	0.5	15.5	8	3.5	0	1.75	0	15.5	7.75	4.81	3.54
Total			30.25			12			20.75			47.5	27.63	15.20
Forbs														
LGS*	0	0	0	0	0	0	0.5	0	0.25	0	0	0	0.06	0.13
WDS*	3.5	0	1.75	0	0	0	0	0	0	0	0	0	0.44	0.88
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			1.75			0			0.25			0	0.50	0.84
TOTAL COVER			32			12			21			47.5	28.13	15.29

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	33			33			33			33				
Treatment	T			T			T			T				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	6			9			14			19			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag cr	0	0	0	0	0	0	0	0.5	0.25	0	0	0	0.06	0.13
Ag sm	0	0	0	0.5	0.5	0.5	0	0	0	0	0	0	0.13	0.25
Ag tra	15.5	3.5	9.5	38	38	38	15.5	15.5	15.5	15.5	38	26.75	22.44	12.60
El ci	0	0	0	0	3.5	1.75	0	0	0	0	0	0	0.44	0.88
Po co	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0.5	0.25	0.5	0	0.25	0.5	0	0.25	3.5	0.5	2	0.69	0.88
Total			9.75			40.5			16			28.75	23.75	13.68
Forbs														

LGS*	38	38	38	38	15.5	26.75	38	38	38	38	15.5	26.75	32.38	6.50
WDS*	0	0.5	0.25	0	0	0	0	0	0	0	0	0	0.06	0.13
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			38.25			26.75			38			26.75	32.44	6.57
TOTAL COVER			48			67.25			54			55.5	56.19	8.06

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	33			33			33			33				
Treatment	A			A			A			A				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	5			7			18			21			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														
Ag sm	0.5	0	0.25	0	0	0	0	3.5	1.75	0	0.5	0.25	0.56	0.80
Ag tra	3.5	0	1.75	0	0	0	0	0.5	0.25	0	15.5	7.75	2.44	3.63
Di sp	3.5	0	1.75	15.5	15.5	15.5	38	3.5	20.75	3.5	0	1.75	9.94	9.69
El ci	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Po co	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Sa ve	0	0	0	0.5	38	19.25	0	0.5	0.25	0	0	0	4.88	9.58
Si hy	0	0	0	0	0	0	3.5	0	1.75	0	0	0	0.44	0.88
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0.5	0.25	0	0	0	0	0	0	0	0	0	0.06	0.13
Total			4			34.75			24.75			9.75	18.31	14.02
Forbs														
LGS*	3.5	15.5	9.5	15.5	0	7.75	0	0	0	0	0	0	4.31	5.03
WDS*	0.5	0	0.25	0	0	0	0	0.5	0.25	0.5	0	0.25	0.19	0.13
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			9.75			7.75			0.25			0.25	4.50	4.97
TOTAL COVER			13.75			42.5			25			10	22.81	14.59

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	33			33			33			33				
Treatment	I			I			I			I				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	1			10			13			22			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag sm	0.5	0	0.25	0	3.5	1.75	0.5	0	0.25	0.5	0	0.25	0.63	0.75
Ag tra	38	15.5	26.75	15.5	15.5	15.5	3.5	38	20.75	3.5	0	1.75	16.19	10.67
Di sp	0	0	0	0	0	0	3.5	3.5	3.5	38	62	50	13.38	24.47
El ci	0	3.5	1.75	0	0	0	0	0	0	0	0	0	0.44	0.88
Po co	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Sa ve	0	0	0	0.5	3.5	2	3.5	0	1.75	0	0	0	0.94	1.09
Si hy	0	0	0	0	0	0	0.5	0	0.25	0	0	0	0.06	0.13
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0.5	0.25	0	0	0	0	0	0	0.06	0.13
Total			28.75			19.5			26.5			52	31.69	14.10
Forbs														

LGS*	15.5	0.5	8	0	3.5	1.75	0	0	0	0	0	0	2.44	3.80
WDS*	0	0	0	3.5	0	1.75	0	0	0	0	0	0	0.44	0.88
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			8			3.5			0			0	2.88	3.79
TOTAL COVER			36.75			23			26.5			52	34.56	13.01

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	33			33			33			33				
Treatment	C			C			C			C				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	4			12			16			20			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag sm	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag tra	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Di sp	38	3.5	20.75	3.5	15.5	9.5	3.5	15.5	9.5	0	0	0	9.94	8.49
El ci	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Po co	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			20.75			9.5			9.5			0	9.94	8.49
Forbs														

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0			0			0			0	0.00	0.00
TOTAL COVER			20.75			9.5			9.5			0	9.94	8.49

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	33			33			33			33				
Treatment	D			D			D			D				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	2			8			17			23			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag cr	0	3.5	1.75	0	0	0	0	0	0	0	0	0	0.44	0.88
Ag sm	3.5	0	1.75	0	0	0	0.5	0	0.25	0	0.5	0.25	0.56	0.80
Ag tra	15.5	15.5	15.5	0	3.5	1.75	0.5	15.5	8	3.5	15.5	9.5	8.69	5.65
Br in	0	38	19	0	0	0	0	0	0	0	0	0	4.75	9.50
Di sp	0	0	0	0	3.5	1.75	15.5	0	7.75	15.5	0	7.75	4.31	4.03
El ci	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Po co	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Sa ve	0	0	0	0	0.5	0.25	0	3.5	1.75	0	0	0	0.50	0.84
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0.5	0	0.25	0.5	0	0.25	0	0	0	0.13	0.14
Total			38			4			18			17.5	19.38	14.01
Forbs														

LGS*	15.5	0	7.75	85.5	98	91.75	0	15.5	7.75	0	3.5	1.75	27.25	43.09
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			7.75			91.75			7.75			1.75	27.25	43.09
TOTAL COVER			45.75			95.75			25.75			19.25	46.63	34.64

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	33			33			33			33				
Treatment	T			T			T			T				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	6			9			14			19			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														
Ag ri	15.5	15.5	15.5	3.5	0	1.75	38	3.5	20.75	0	3.5	1.75	9.94	9.69
Ag tri	3.5	15.5	9.5	62	38	50	0	15.5	7.75	38	3.5	20.75	22.00	19.54
De ca	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
El an	0	0	0	0	3.5	1.75	0	0	0	0.5	0	0.25	0.50	0.84
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	15.5	15.5	15.5	0	0.5	0.25	0	0	0	0	0	0	3.94	7.71
Total			40.5			53.75			28.5			22.75	36.38	13.74
Forbs														
LGS*	15.5	15.5	15.5	0.5	0	0.25	38	38	38	15.5	38	26.75	20.13	16.12
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			15.5			0.25			38			26.75	20.13	16.12
TOTAL COVER			56			54			66.5			49.5	56.50	7.20

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	33			33			33			33				
Treatment	A			A			A			A				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	5			7			18			21			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag ri	0	0.5	0.25	0	0.5	0.25	0.5	0	0.25	0.5	15.5	8	2.19	3.88
Ag tri	0	3.5	1.75	3.5	0	1.75	0.5	0.5	0.5	0.5	15.5	8	3.00	3.39
De ca	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Di sp	15.5	0	7.75	38	3.5	20.75	0	15.5	7.75	3.5	0	1.75	9.50	8.02
El an	3.5	0.5	2	0.5	0	0.25	0.5	0	0.25	0	0	0	0.63	0.92
Sa ve	0	0	0	0	3.5	1.75	0	3.5	1.75	0	0.5	0.25	0.94	0.94
Si hy	0	0	0	0	0	0	3.5	0	1.75	0	3.5	1.75	0.88	1.01
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	3.5	1.75	0	0	0	0	0	0	0	3.5	1.75	0.88	1.01
Total			13.5			24.75			12.25			21.5	18.00	6.09
Forbs														

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0.5	0.25	0.06	0.13
Total			0			0			0			0.25	0.06	0.13
TOTAL COVER			13.5			24.75			12.25			21.75	18.06	6.14

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	33			33			33			33				
Treatment	I			I			I			I				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	1			10			13			22			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														
Ag ri	15.5	15.5	15.5	0.5	0	0.25	0.5	15.5	8	0	0.5	0.25	6.00	7.31
Ag tri	0	38	19	3.5	3.5	3.5	15.5	3.5	9.5	0	38	19	12.75	7.62
De ca	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Di sp	15.5	0	7.75	0	3.5	1.75	0.5	0	0.25	15.5	3.5	9.5	4.81	4.50
El an	38	0	19	15.5	0	7.75	15.5	15.5	15.5	3.5	0	1.75	11.00	7.75
Sa ve	0	0	0	0	3.5	1.75	0	0	0	0	3.5	1.75	0.88	1.01
NSG*	0	0	0	0	0.5	0.25	0	0	0	0	0	0	0.06	0.13
UNK*	0	0	0	0	0.5	0.25	0	0	0	0	0	0	0.06	0.13
Total			61.25			15.5			33.25			32.25	35.56	18.96
Forbs														
LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	0	0	0	3.5	3.5	3.5	0.5	0	0.25	0	0	0	0.94	1.71
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0			3.5			0.25			0	0.94	1.71
TOTAL COVER			61.25			19			33.5			32.25	36.50	17.76

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	33			33			33			33				
Treatment	C			C			C			C				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	4			12			16			20			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag ri	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag tri	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
De ca	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Di sp	38	15.5	26.75	0	0	0	15.5	3.5	9.5	3.5	0	1.75	9.50	12.22
El an	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			26.75			0			9.5			1.75	9.50	12.22
Forbs														

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0			0			0			0	0.00	0.00
TOTAL COVER			26.75			0			9.5			1.75	9.50	12.22

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1990 Data (% Aerial Cover)

Site	33			33			33			33				
Treatment	D			D			D			D				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	2			8			17			23			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag cr	0	0	0	0	0.5	0.25	0	0	0	0	0	0	0.06	0.13
Ag ri	3.5	3.5	3.5	3.5	15.5	9.5	0	0	0	0	15.5	7.75		
Ag tri	15.5	15.5	15.5	62	15.5	38.75	38	0	19	15.5	38	26.75	25.00	10.30
Br te	0.5	0	0.25	0	0	0	0	0	0	0	0	0		
De ca	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Di sp	0	0	0	0	0	0	0	15.5	7.75	15.5	0	7.75	3.88	4.47
El an	3.5	15.5	9.5	38	15.5	26.75	0	0	0	38	15.5	26.75	15.75	13.28
Sa ve	0	0	0	0	0	0	3.5	3.5	3.5	0.5	0	0.25		
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			28.75			75.25			30.25			69.25	50.88	24.81
Forbs														

LGS*	0.5	0	0.25	0	0	0	0	0	0	0	0	0	0.06	0.13
WDS*	0	0	0	3.5	0.5	2	0	0	0	0	0	0	0.50	1.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0.25			2			0			0	0.56	0.97
TOTAL COVER			29			77.25			30.25			69.25	51.44	25.40

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Un[illegible]n

APPENDIX D4

AERIAL COVER 1991

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	7			7			7			7					
Treatment	T			T			T			T					
Seed Mix	1			1			1			1					
Replication	1			2			3			4					
Plot	6			12			13			19					
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	treatment mean	treatment std.dev.	Relative Cover
Plant Species															
Grasses															

Ag cr	0	0	0	3.5	0	1.75	0	0	0	0	0	0	0.44	0.88	0.56
Ag da	15.5	15.5	15.5	15.5	38	26.75	0.5	3.5	2	3.5	0	1.75	11.50	12.03	14.78
Ca lo	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
El an	38	15.5	26.75	15.5	15.5	15.5	38	38	38	0	0	0	20.06	16.23	25.78
Fe ov	0	15.5	7.75	3.5	38	20.75	0	15.5	7.75	0	0	0	9.06	8.61	11.65
Po co	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			50			64.75			47.75			1.75	41.06	27.27	
Forbs															

LGS*	0.5	0	0.25	0	0	0	0	15.5	7.75	38	89	63.5	17.88	30.63	22.97
WDS*	0.5	19	9.75	0	0	0	0.5	0	0.25	77.5	53.5	65.5	18.88	31.41	24.26
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			10			0			8			129	36.75	61.65	
TOTAL COVER			60			64.75			55.75			130.75	77.81	35.48	

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	7			7			7			7					
Treatment	A			A			A			A					
Seed Mix	1			1			1			1					
Replication	1			2			3			4					
Plot	1			10			16			23					
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	treatment mean	treatment std.dev.	Relative Cover
Plant Species															
Grasses															
Ag da	15.5	15.5	15.5	3.5	0.5	2	3.5	0	1.75	3.5	0	1.75	5.25	6.83	18.71
Ag te	0	0	0	0	0	0	0	0	0	0	3.5	1.75	0.44	0.88	1.56
Ca lo	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
El an	38	3.5	20.75	3.5	15.5	9.5	3.5	3.5	3.5	0	0	0	8.44	9.10	30.07
El gi	0	0	0	0	0	0	0	0	0	38	0	19	4.75	9.50	16.93
Fe ov	0	3.5	1.75	0	0	0	0	3.5	1.75	15.5	0.5	8	2.88	3.51	10.25
Po co	0	0	0	3.5	0	1.75	0	0	0	0	0	0	0.44	0.88	1.56
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			38			13.25			7			30.5	22.19	14.49	
Forbs															
LGS*	38	0	19	0	0	0	0.5	0	0.25	0	0	0	4.81	9.46	17.15
WDS*	0	3.5	1.75	0.5	4.5	2.5	0	0	0	0	0	0	1.06	1.26	3.79
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			20.75			2.5			0.25			0	5.88	9.98	
TOTAL COVER			58.75			15.75			7.25			30.5	28.06	22.60	

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	7			7			7			7				
Treatment	I			I			I			I				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	5			8			18			22			treatment	treatment	Relative
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.	Cover
Plant Species															
Grasses															

Ag da	38	38	38	0	0	0	0.5	0	0.25	0	3.5	1.75	10.00	18.68	32.20
Ag te	0	3.5	1.75	0	0	0	0	0	0	0	0	0	0.44	0.88	1.41
Ca lo	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
De ca	0	3.5	1.75	0	0	0	0	0	0	0	0	0	0.44	0.88	1.41
El an	62	38	50	0	0.5	0.25	15.5	0.5	8	3.5	0	1.75	15.00	23.57	48.29
El gi	0	0	0	0	0	0	0	0	0	15.5	3.5	9.5	2.38	4.75	7.65
Fe ov	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Po co	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			91.5			0.25			8.25			13	28.25	42.49	
Forbs															

LGS*	3.5	15.5	9.5	0	0	0	0	0	0	0	0	0	2.38	4.75	7.65
WDS*	0	3.5	1.75	0	0	0	0	0	0	0	0	0	0.44	0.88	1.41
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			11.25			0			0			0	2.81	5.63	
TOTAL COVER			102.75			0.25			8.25			13	31.06	48.08	

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	7			7			7			7				
Treatment	C			C			C			C				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	2			11			17			21				
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	treatment mean	treatment std.dev.	Relative Cover
Plant Species															
Grasses															

Ag da	0	0	0	0	0	0	0	0.5	0.25	0	0	0	0.06	0.13	12.50
Ca lo	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
El an	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Fe ov	0	0	0	0	0	0	0	0	0	3.5	0	1.75	0.44	0.88	87.50
Po co	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			0			0			0.25			1.75	0.50	0.84	
Forbs															

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	ERR
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	ERR
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	ERR
Total			0			0			0			0	0.00	0.00	
TOTAL COVER			0			0			0.25			1.75	0.50	0.84	

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	7			7			7			7					
Treatment	D			D			D			D					
Seed Mix	1			1			1			1					
Replication	1			2			3			4					
Plot	3			9			14			20			treatment	treatment	Relative
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.	Cover
Plant Species															
Grasses															

Ag da	15.5	3.5	9.5	0	15.5	7.75	0	0	0	0	15.5	7.75	6.25	4.25	13.81
Ag te	0	0	0	0	0	0	0	0	0	15.5	0	7.75	1.94	3.88	4.28
Ca lo	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
El an	15.5	15.5	15.5	62	38	50	15.5	38	26.75	15.5	15.5	15.5	26.94	16.26	59.53
El gi	0	0	0	0	0	0	0	0	0	0	15.5	7.75	1.94	3.88	4.28
Fe ov	15.5	0	7.75	0	0	0	3.5	0	1.75	3.5	15.5	9.5	4.75	4.59	10.50
Po co	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			32.75			57.75			28.5			48.25	41.81	13.60	
Forbs															

LGS*	3.5	3.5	3.5	0	3.5	1.75	0.5	0.5	0.5	15.5	0.5	8	3.44	3.28	7.60
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			3.5			1.75			0.5			8	3.44	3.28	
TOTAL COVER			36.25			59.5			29			56.25	45.25	14.93	

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	7			7			7			7					
Treatment	T			T			T			T					
Seed Mix	2			2			2			2					
Replication	1			2			3			4					
Plot	6			12			13			19					
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	treatment mean	treatment std.dev.	Relative Cover
Plant Species															
Grasses															

Ag da	15.5	15.5	15.5	3.5	0	1.75	3.5	15.5	9.5	15.5	3.5	9.5	9.06	5.64	12.11
Br te	0.5	0	0.25	0	0	0	0	0	0	0	3.5	1.75	0.50	0.84	0.67
De ca	0	0.5	0.25	3.5	0	1.75	0	0	0	0	0	0	0.50	0.84	0.67
El ci	62	38	50	38	15.5	26.75	15.5	0	7.75	0	0.5	0.25	21.19	22.21	28.32
El gi	3.5	0	1.75	0	15.5	7.75	0	0	0	0	0	0	2.38	3.68	3.17
Fe lo	3.5	0	1.75	0	38	19	0	0	0	0	0	0	5.19	9.25	6.93
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			69.5			57			17.25			11.5	38.81	28.77	
Forbs															

LGS*	0	0	0	0	38	19	0	38	19	3.5	15.5	9.5	11.88	9.10	15.87
WDS*	3.5	0.5	2	15.5	0	7.75	7	62	34.5	89	15.5	52.25	24.13	23.50	32.25
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			2			26.75			53.5			61.75	36.00	27.15	
TOTAL COVER			71.5			83.75			70.75			73.25	74.81	6.05	

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	7			7			7			7					
Treatment	A			A			A			A					
Seed Mix	2			2			2			2					
Replication	1			2			3			4					
Plot	1			10			16			23			treatment	treatment	Relative
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.	Cover
Plant Species															
Grasses															

Ag da	15.5	15.5	15.5	0	0	0	0	0.5	0.25	0	0	0	3.94	7.71	9.53
De ca	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
El ci	0	0	0	15.5	38	26.75	0	0	0	0	0.5	0.25	6.75	13.33	16.34
El gi	0	0	0	38	62	50	0.5	15.5	8	15.5	62	38.75	24.19	23.98	58.55
Fe lo	0	3.5	1.75	0	0	0	0	0	0	0	0	0	0.44	0.88	1.06
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			17.25			76.75			8.25			39	35.31	30.49	
Forbs															

LGS*	38	0	19	0.5	0	0.25	0	0	0	0	0	0	4.81	9.46	11.65
WDS*	0	0	0	4	0	2	0.5	4	2.25	0	0	0	1.06	1.23	2.57
UNK*	0	0.5	0.25	0.5	0	0.25	0	0	0	0	0	0	0.13	0.14	0.30
Total			19.25			2.5			2.25			0	6.00	8.90	
TOTAL COVER			36.5			79.25			10.5			39	41.31	28.39	

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	7			7			7			7					
Treatment	I			I			I			I					
Seed Mix	2			2			2			2					
Replication	1			2			3			4					
Plot	5			8			18			22			treatment	treatment	Relative
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.	Cover
Plant Species															
Grasses															

Ag da	0	0	0	0	0	0	3.5	15.5	9.5	0	3.5	1.75	2.81	4.53	13.93
De ca	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
El ci	0	0	0	0.5	0	0.25	0	0	0	0	0	0	0.06	0.13	0.31
El gi	3.5	15.5	9.5	0	0	0	3.5	15.5	9.5	62	38	50	17.25	22.29	85.44
Fe lo	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			9.5			0.25			19			51.75	20.13	22.43	
Forbs															

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
WDS*	0	0	0	0	0	0	0.5	0	0.25	0	0	0	0.06	0.13	0.31
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			0			0			0.25			0	0.06	0.13	
TOTAL COVER			9.5			0.25			19.25			51.75	20.19	22.43	

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	7			7			7			7					
Treatment	C			C			C			C					
Seed Mix	2			2			2			2					
Replication	1			2			3			4					
Plot	2			11			17			21			treatment	treatment	Relative
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.	Cover
Plant Species															
Grasses															

Ag da	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
De ca	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
El ci	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
El gi	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Fe lo	3.5	0	1.75	0	0	0	0	0	0	0	0	0	0.44	0.88	99.43
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			1.75			0			0			0	0.44	0.88	
Forbs															

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
WDS*	0.5	0	0.25	0	0	0	0	0	0	0	0	0	0.06	0.13	104.17
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			0.25			0			0			0	0.06	0.13	
TOTAL COVER			2			0			0			0	0.50	1.00	

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	7			7			7			7					
Treatment	D			D			D			D					
Seed Mix	2			2			2			2					
Replication	1			2			3			4					
Plot	3			9			14			20					
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	treatment mean	treatment std.dev.	Relative Cover
Plant Species															
Grasses															
Ag da	3.5	3.5	3.5	15.5	15.5	15.5	3.5	3.5	3.5	0	3.5	1.75	6.06	6.35	11.62
De ca	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
El ci	0	0	0	0	0	0	0	0	0	0	15.5	7.75	1.94	3.88	3.71
El gi	3.5	38	20.75	62	3.5	32.75	15.5	15.5	15.5	62	62	62	32.75	20.79	62.75
Fe lo	3.5	38	20.75	0	0	0	0	0	0	15.5	0	7.75	7.13	9.79	13.65
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			45			48.25			19			79.25	47.88	24.67	
Forbs															
LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
WDS*	0	15.5	7.75	0	3.5	1.75	0	15.5	7.75	0	0	0	4.31	4.03	8.26
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			7.75			1.75			7.75			0	4.31	4.03	
TOTAL COVER			52.75			50			26.75			79.25	52.19	21.48	

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	21			21			21			21					
Treatment	T			T			T			T					
Seed Mix	1			1			1			1					
Replication	1			2			3			4					
Plot	1			12			13			19					
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	treatment mean	treatment std.dev.	Relative Cover
Plant Species															
Grasses															
Ag cr	15.5	3.5	9.5	38	3.5	20.75	38	38	38	62	85.5	73.75	35.50	28.06	45.77
Ag el	38	62	50	38	85.5	61.75	15.5	38	26.75	0	3.5	1.75	35.06	26.55	45.21
Ag ri	16	7	11.5	0	0	0	0	0	0	0	0	0	2.88	5.75	3.71
Di sp	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			71			82.5			64.75			75.5	73.44	7.48	
Forbs															
LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
WDS*	0	0	0	1	0	0.5	16.5	15.5	16	0	0	0	4.13	7.92	5.32
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			0			0.5			16			0	4.13	7.92	
TOTAL COVER			71			83			80.75			75.5	77.56	5.39	

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	21			21			21			21					
Treatment	A			A			A			A					
Seed Mix	1			1			1			1					
Replication	1			2			3			4					
Plot	5			9			15			23					
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	treatment mean	treatment std.dev.	Relative Cover
Plant Species															
Grasses															
Ag cr	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Ag el	85.5	62	73.75	15.5	15.5	15.5	38	62	50	85.5	85.5	85.5	56.19	30.88	98.25
Ag ri	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
De ca	0	0	0	0	0	0	0.5	0	0.25	0	0	0	0.06	0.13	0.11
Di sp	0	0	0	0	0.5	0.25	0	0	0	0	0	0	0.06	0.13	0.11
Si hy	0	0	0	0	0	0	0	0	0	3.5	0	1.75	0.44	0.88	0.76
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			73.75			15.75			50.25			87.25	56.75	31.32	
Forbs															
LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
WDS*	0	0	0	0	0	0	0	3.5	1.75	0	0	0	0.44	0.88	0.76
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			0			0			1.75			0	0.44	0.88	
TOTAL COVER			73.75			15.75			52			87.25	57.19	31.21	

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	21			21			21			21					
Treatment	I			I			I			I					
Seed Mix	1			1			1			1					
Replication	1			2			3			4					
Plot	4			11			14			24			treatment	treatment	Relative
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.	Cover
Plant Species															
Grasses															

Ag cr	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Ag el	62	15.5	38.75	38	38	38	62	38	50	62	62	62	47.19	11.30	94.26
Ag ri	0	0.5	0.25	0	0	0	0	0	0	0	0	0	0.06	0.13	0.12
Di sp	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Si hy	3.5	0	1.75	0	0	0	0	0	0	0	0	0	0.44	0.88	0.87
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			40.75			38			50			62	47.69	10.83	
Forbs															

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
WDS*	0	0	0	3.5	0	1.75	0	15.5	7.75	0	0	0	2.38	3.68	4.73
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			0			1.75			7.75			0	2.38	3.68	
TOTAL COVER			40.75			39.75			57.75			62	50.06	11.47	

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	21			21			21			21				
Treatment	C			C			C			C				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	6			10			18			20			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag cr	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag el	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag ri	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Di sp	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0			0			0			0	0.00	0.00
Forbs														

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0			0			0			0	0.00	0.00
TOTAL COVER			0			0			0			0	0.00	0.00

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	21			21			21			21					
Treatment	D			D			D			D					
Seed Mix	1			1			1			1					
Replication	1			2			3			4					
Plot	2			7			17			21			treatment	treatment	Relative
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.	Cover
Plant Species															
Grasses															

Ag cr	0	0	0	0	3.5	1.75	15.5	0	7.75	0	0	0	2.38	3.68	3.82
Ag el	85.5	62	73.75	85.5	62	73.75	15.5	38	26.75	15.5	38	26.75	50.25	27.14	80.72
Ag ri	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Di sp	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Si hy	0	0	0	0	0	0	0	0	0	0	3.5	1.75	0.44	0.88	0.70
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	15.5	7.75	0	0	0	0	0	0	0	0	0	1.94	3.88	3.11
Total			81.5			75.5			34.5			28.5	55.00	27.36	
Forbs															

LGS*	0	0	0	0	0	0	3.5	0	1.75	0	0	0	0.44	0.88	0.70
WDS*	0.5	0	0.25	0.5	0	0.25	0	15.5	7.75	38	0	19	6.81	8.86	10.94
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			0.25			0.25			9.5			19	7.25	8.97	
TOTAL COVER			81.75			75.75			44			47.5	62.25	19.26	

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	21			21			21			21					
Treatment	T			T			T			T					
Seed Mix	2			2			2			2					
Replication	1			2			3			4					
Plot	1			12			13			19					
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	treatment mean	treatment std.dev.	Relative Cover
Plant Species															
Grasses															

Ag de	3.5	15.5	9.5	38	38	38	15.5	38	26.75	62	38	50	31.06	17.23	46.32
Ag in	15.5	38	26.75	15.5	15.5	15.5	62	15.5	38.75	0	3.5	1.75	20.69	15.80	30.85
Ag tri	15.5	0.5	8	0	0	0	3.5	15.5	9.5	3.5	15.5	9.5	6.75	4.56	10.07
El ju	15.5	0	7.75	0	38	19	0	0	0	0	0	0	6.69	8.98	9.97
Si hy	3.5	0	1.75	0	0	0	0	0	0	0	0	0	0.44	0.88	0.65
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			53.75			72.5			75			61.25	65.63	9.92	
Forbs															

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
WDS*	0.5	0	0.25	0.5	10.5	5.5	0	0	0	0	0	0	1.44	2.71	2.14
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			0.25			5.5			0			0	1.44	2.71	
TOTAL COVER			54			78			75			61.25	67.06	11.36	

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	21			21			21			21					
Treatment	A			A			A			A					
Seed Mix	2			2			2			2					
Replication	1			2			3			4					
Plot	5			9			15			23			treatment	treatment	Relative
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.	Cover
Plant Species															
Grasses															

Ag de	0	3.5	1.75	0	0	0	0	0	0	0	3.5	1.75	0.88	1.01	1.64
Ag in	0	15.5	7.75	38	15.5	26.75	85.5	15.5	50.5	62	85.5	73.75	39.69	28.66	74.18
Ag tri	0	15.5	7.75	0	0	0	0	0	0	0	0	0	1.94	3.88	3.62
De ca	0	0	0	0	15.5	7.75	0	0	0	0	0	0	1.94	3.88	3.62
El ju	38	15.5	26.75	0	0	0	0	0	0	15.5	3.5	9.5	9.06	12.61	16.94
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			44			34.5			50.5			85	53.50	22.00	
Forbs															

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	ERR
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	ERR
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	ERR
Total			0			0			0			0	0.00	0.00	
TOTAL COVER			44			34.5			50.5			85	53.50	22.00	

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	21			21			21			21					
Treatment	I			I			I			I					
Seed Mix	2			2			2			2					
Replication	1			2			3			4					
Plot	4			11			14			24			treatment	treatment	Relative
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.	Cover
Plant Species															
Grasses															

Ag de	3.5	0	1.75	0	15.5	7.75	0	0	0	0	3.5	1.75	2.81	3.39	7.22
Ag in	0	15.5	7.75	38	15.5	26.75	3.5	15.5	9.5	38	15.5	26.75	17.69	10.49	45.42
Ag tri	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
De ca	0	0	0	0	0	0	0	0	0	3.5	0	1.75	0.44	0.88	1.12
El ju	62	62	62	0	0	0	0	0	0	0	15.5	7.75	17.44	29.93	44.78
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			71.5			34.5			9.5			38	38.38	25.47	
Forbs															

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
WDS*	0.5	0	0.25	3.5	0	1.75	0	0.5	0.25	0	0	0	0.56	0.80	1.44
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			0.25			1.75			0.25			0	0.56	0.80	
TOTAL COVER			71.75			36.25			9.75			38	38.94	25.41	

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	21			21			21			21				
Treatment	C			C			C			C				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	6			10			18			20			treatment	treatment
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.
Plant Species														
Grasses														

Ag de	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag in	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Ag tri	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
El ju	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0			0			0			0	0.00	0.00
Forbs														

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00
Total			0			0			0			0	0.00	0.00
TOTAL COVER			0			0			0			0	0.00	0.00

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	21			21			21			21					
Treatment	D			D			D			D					
Seed Mix	2			2			2			2					
Replication	1			2			3			4					
Plot	2			7			17			21			treatment	treatment	Relative
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.	Cover
Plant Species															
Grasses															

Ag de	15.5	0	7.75	0	0	0	3.5	0	1.75	0	0	0	2.38	3.68	3.85
Ag in	15.5	38	26.75	38	0	19	62	62	62	38	62	50	39.44	19.99	63.99
Ag tri	3.5	0	1.75	0	0	0	0	0	0	0	0	0	0.44	0.88	0.71
De ca	0	0	0	15.5	0	7.75	0	0	0	0	0	0	1.94	3.88	3.14
El ju	0	15.5	7.75	15.5	62	38.75	15.5	15.5	15.5	0	0	0	15.50	16.74	25.15
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			44			65.5			79.25			50	59.69	15.88	
Forbs															

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
WDS*	0	0	0	0	0	0	0	0	0	15.5	0	7.75	1.94	3.88	3.14
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			0			0			0			7.75	1.94	3.88	
TOTAL COVER			44			65.5			79.25			57.75	61.63	14.73	

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	27			27			27			27					
Treatment	A			A			A			A					
Seed Mix	1			1			1			1					
Replication	1			2			3			4					
Plot	4			7			17			19					
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	treatment mean	treatment std.dev.	Relative Cover
Plant Species															
Grasses															

Ag de	62	62	62	38	38	38	62	38	50	38	15.5	26.75	44.19	15.20	61.75
Ag el	0	0	0	0	0	0	0	0.5	0.25	0	0	0	0.06	0.13	0.09
Ag in	0	15.5	7.75	15.5	0	7.75	0	0	0	15.5	15.5	15.5	7.75	6.33	10.83
Ag sm	15.5	0	7.75	15.5	0	7.75	0	0	0	0	0	0	3.88	4.47	5.42
Ag te	0	0	0	0	0	0	3.5	0	1.75	0	38	19	5.19	9.25	7.25
Ag tri	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Br in	0	0	0	0	0	0	0	0.5	0.25	0	0	0	0.06	0.13	0.09
De ca	0	0	0	0	0	0	0	0	0	15.5	15.5	15.5	3.88	7.75	5.42
El an	0	0	0	0	15.5	7.75	15.5	3.5	9.5	3.5	0	1.75	4.75	4.59	6.64
Poa Sp.	0	0	0	0	0	0	3.5	0	1.75	0	0	0	0.44	0.88	0.61
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			77.5			61.25			63.5			78.5	70.19	9.08	
Forbs															

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
WDS*	0	0	0	7	3.5	5.25	0	0	0	0	0.5	0.25	1.38	2.59	1.92
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			0			5.25			0			0.25	1.38	2.59	
TOTAL COVER			77.5			66.5			63.5			78.75	71.56	7.69	

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	27			27			27			27					
Treatment	C			C			C			C					
Seed Mix	1			1			1			1					
Replication	1			2			3			4					
Plot	2			10			14			21			treatment	treatment	Relative
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.	Cover
Plant Species															
Grasses															

Ag de	3.5	0.5	2	0	0	0	0	0	0	0	0	0	0.50	1.00	1.62
Ag sm	15.5	62	38.75	0	0	0	0	0	0	0	0	0	9.69	19.38	31.31
Ag te	15.5	0	7.75	0	0	0	0	0	0	0	0	0	1.94	3.88	6.26
Ag tri	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Ca mo	0	0	0	0	0	0	0	15.5	7.75	0	0	0	1.94	3.88	6.26
De ca	0	0	0	0.5	0	0.25	15.5	0	7.75	38	15.5	26.75	8.69	12.57	28.08
El an	15.5	0	7.75	0	0	0	0	0	0	0	0	0	1.94	3.88	6.26
Ju ba	0	0	0	3.5	0	1.75	15.5	15.5	15.5	0	0	0	4.31	7.50	13.94
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			56.25			2			31			26.75	29.00	22.22	
Forbs															

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
WDS*	15.5	0	7.75	0	0	0	0	0	0	0	0	0	1.94	3.88	6.26
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			7.75			0			0			0	1.94	3.88	
TOTAL COVER			64			2			31			26.75	30.94	25.48	

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Un[illegible]n

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	27			27			27			27					
Treatment	X			X			X			X					
Seed Mix	1			1			1			1					
Replication	1			2			3			4					
Plot	1			9			13			20			treatment	treatment	Relative
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.	Cover
Plant Species															
Grasses															

Ag de	38	15.5	26.75	62	15.5	38.75	0	0	0	0	0	0	16.38	19.53	36.34
Ag in	15.5	0	7.75	3.5	0	1.75	3.5	0	1.75	15.5	3.5	9.5	5.19	4.03	11.51
Ag sm	0	0	0	0.5	0	0.25	3.5	38	20.75	0	0	0	5.25	10.33	11.65
Ag tri	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
De ca	0	15.5	7.75	0	0	0	15.5	0	7.75	38	15.5	26.75	10.56	11.39	23.44
El an	0	0	0	0	15.5	7.75	3.5	0	1.75	0	0	0	2.38	3.68	5.27
Si hy	0.5	0	0.25	0	15.5	7.75	0	0	0	0	0	0	2.00	3.84	4.44
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			42.5			56.25			32			36.25	41.75	10.58	
Forbs															

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
WDS*	0	3.5	1.75	0	15.5	7.75	0.5	0	0.25	0	3.5	1.75	2.88	3.33	6.38
UNK*	0	0	0	0	0	0	0	3.5	1.75	0	0	0	0.44	0.88	0.97
Total			1.75			7.75			2			1.75	3.31	2.96	
TOTAL COVER			44.25			64			34			38	45.06	13.31	

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	27			27			27			27					
Treatment	D			D			D			D					
Seed Mix	1			1			1			1					
Replication	1			2			3			4					
Plot	5			11			16			22					
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	treatment mean	treatment std.dev.	Relative Cover
Plant Species															
Grasses															
Ag de	62	38	50	62	15.5	38.75	38	62	50	85.5	85.5	85.5	56.06	20.33	89.16
Ag in	3.5	0	1.75	0.5	3.5	2	0	0	0	0	0	0	0.94	1.09	1.49
Ag sm	0	0	0	3.5	0	1.75	3.5	3.5	3.5	0	0	0	1.31	1.68	2.09
Ag tri	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
El an	0	0	0	3.5	0	1.75	0	0	0	0	15.5	7.75	2.38	3.68	3.78
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			51.75			44.25			53.5			93.25	60.69	22.08	
Forbs															
LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
WDS*	0	0	0	0.5	15.5	8	1	0	0.5	0	0	0	2.13	3.92	3.38
UNK*	0	0	0	0	0	0	0.5	0	0.25	0	0	0	0.06	0.13	0.10
Total			0			8			0.75			0	2.19	3.89	
TOTAL COVER			51.75			52.25			54.25			93.25	62.88	20.28	

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	27			27			27			27					
Treatment	A			A			A			A					
Seed Mix	2			2			2			2					
Replication	1			2			3			4					
Plot	4			7			17			19					
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	treatment mean	treatment std.dev.	Relative Cover
Plant Species															
Grasses															

Ag cr	15.5	62	38.75	62	62	62	15.5	38	26.75	15.5	15.5	15.5	35.75	19.91	46.24
Ag el	0	0	0	0	0	0	0	3.5	1.75	0	3.5	1.75	0.88	1.01	1.13
Ag in	0	0	0	0	0	0	3.5	0	1.75	0	0	0	0.44	0.88	0.57
Ag te	0	0	0	0	0	0	0	0	0	0	0.5	0.25	0.06	0.13	0.08
Ag tri	15.5	15.5	15.5	0	3.5	1.75	0	3.5	1.75	0	0	0	4.75	7.21	6.14
El ju	15.5	15.5	15.5	62	0	31	38	38	38	62	38	50	33.63	14.41	43.49
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			69.75			94.75			70			67.5	75.50	12.88	
Forbs															

LGS*	0	0	0	0	0	0	0	3.5	1.75	0	0	0	0.44	0.88	0.57
WDS*	7	3.5	5.25	0	0.5	0.25	0	0	0	0	0	0	1.38	2.59	1.78
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			5.25			0.25			1.75			0	1.81	2.42	
TOTAL COVER			75			95			71.75			67.5	77.31	12.18	

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	27			27			27			27					
Treatment	C			C			C			C					
Seed Mix	2			2			2			2					
Replication	1			2			3			4					
Plot	2			10			14			21					
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	treatment mean	treatment std.dev.	Relative Cover
Plant Species															
Grasses															

Ag cr	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Ag el	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Ag in	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Ag sm	0	0	0	0	0	0	0.5	0	0.25	0	0	0	0.06	0.13	1.39
Ag te	0	0	0	0	0	0	0.5	0	0.25	0	0	0	0.06	0.13	1.39
Ca mo	0	0	0	3.5	0	1.75	0	0.5	0.25	0	0	0	0.50	0.84	11.11
De ca	0	0	0	0	0	0	0	0	0	3.5	15.5	9.5	2.38	4.75	52.78
El ju	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Ju ba	0.5	3.5	2	3.5	3.5	3.5	0	0.5	0.25	0.5	0	0.25	1.50	1.57	33.33
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			2			5.25			1			9.75	4.50	3.94	
Forbs															

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	ERR
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	ERR
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	ERR
Total			0			0			0			0	0.00	0.00	
TOTAL COVER			2			5.25			1			9.75	4.50	3.94	

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	27			27			27			27					
Treatment	X			X			X			X					
Seed Mix	2			2			2			2					
Replication	1			2			3			4					
Plot	1			9			13			20			treatment	treatment	Relative
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.	Cover
Plant Species															
Grasses															

Ag cr	38	38	38	15.5	38	26.75	3.5	3.5	3.5	3.5	0	1.75	17.50	17.79	24.33
Ag el	0	0	0	0	0	0	0	0	0	15.5	15.5	15.5	3.88	7.75	5.39
Ag in	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Ag tri	0	0	0	3.5	0	1.75	0	0.5	0.25	0	0	0	0.50	0.84	0.70
De ca	0	0	0	0	0	0	0	0	0	0.5	15.5	8	2.00	4.00	2.78
El ju	38	15.5	26.75	38	62	50	62	62	62	38	38	38	44.19	15.20	61.42
Ju ba	0	0	0	0	0	0	0	0	0	3.5	0	1.75	0.44	0.88	0.61
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			64.75			78.5			65.75			65	68.50	6.68	
Forbs															

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
WDS*	19.5	3.5	11.5	0	0	0	0	3.5	1.75	0.5	0	0.25	3.38	5.47	4.69
UNK*	0	0.5	0.25	0	0	0	0	0	0	0	0	0	0.06	0.13	0.09
Total			11.75			0			1.75			0.25	3.44	5.60	
TOTAL COVER			76.5			78.5			67.5			65.25	71.94	6.54	

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	27			27			27			27				
Treatment	D			D			D			D				
Seed Mix	2			2			2			2				
Replication	1			2			3			4				
Plot	5			11			16			22			treatment	treatment	Relative
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.	Cover
Plant Species															
Grasses															

Ag cr	38	62	50	3.5	38	20.75	62	15.5	38.75	62	38	50	39.88	13.81	63.04
Ag el	0	0	0	0	0	0	3.5	3.5	3.5	0	0	0	0.88	1.75	1.38
Ag in	0	0	0	0	3.5	1.75	0	0	0	0	0	0	0.44	0.88	0.69
Ag tri	3.5	0	1.75	0	15.5	7.75	15.5	3.5	9.5	0	3.5	1.75	5.19	4.03	8.20
El ju	3.5	0	1.75	15.5	15.5	15.5	0	15.5	7.75	38	38	38	15.75	15.87	24.90
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			53.5			45.75			59.5			89.75	62.13	19.26	
Forbs															

LGS*	0	3.5	1.75	0	0	0	0.5	0	0.25	0	0	0	0.50	0.84	0.79
WDS*	0	0	0	0.5	0.5	0.5	4	0	2	0	0	0	0.63	0.95	0.99
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			1.75			0.5			2.25			0	1.13	1.05	
TOTAL COVER			55.25			46.25			61.75			89.75	63.25	18.77	

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	33			33			33			33					
Treatment	T			T			T			T					
Seed Mix	1			1			1			1					
Replication	1			2			3			4					
Plot	6			9			14			19			treatment	treatment	Relative
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.	Cover
Plant Species															
Grasses															

Ag cr	0	0	0	0	0	0	0.5	15.5	8	0	0	0	2.00	4.00	2.36
Ag sm	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Ag tra	0	15.5	7.75	15.5	0.5	8	0	15.5	7.75	38	38	38	15.38	15.08	18.14
El ci	62	3.5	32.75	62	38	50	62	15.5	38.75	38	38	38	39.88	7.26	47.05
Po co	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Si hy	0	3.5	1.75	0	0	0	0	0	0	0	0	0	0.44	0.88	0.52
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			42.25			58			54.5			76	57.69	13.95	
Forbs															

LGS*	3.5	0.5	2	15.5	0	7.75	0.5	15.5	8	15.5	0	7.75	6.38	2.92	7.52
WDS*	26	88	57	0	0	0	3.5	17	10.25	31	0	15.5	20.69	25.05	24.41
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			59			7.75			18.25			23.25	27.06	22.25	
TOTAL COVER			101.25			65.75			72.75			99.25	84.75	18.14	

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	33			33			33			33					
Treatment	A			A			A			A					
Seed Mix	1			1			1			1					
Replication	1			2			3			4					
Plot	5			7			18			21					
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	treatment mean	treatment std.dev.	Relative Cover
Plant Species															
Grasses															
Ag sm	3.5	3.5	3.5	0	0	0	0.5	0	0.25	0.5	0	0.25	1.00	1.67	1.70
Ag tra	15.5	0	7.75	0	0	0	0	0	0	0	15.5	7.75	3.88	4.47	6.58
De ca	0	15.5	7.75	0	0	0	0	0	0	0	0	0	1.94	3.88	3.29
Di sp	0	0	0	15.5	38	26.75	0	85.5	42.75	0	62	31	25.13	18.07	42.67
El ci	0	0.5	0.25	0	0	0	15.5	0	7.75	0	0	0	2.00	3.84	3.40
Po co	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Sa ve	0	3.5	1.75	62	15.5	38.75	38	0	19	0	0	0	14.88	18.08	25.26
Si hy	0	0	0	0	0	0	0	15.5	7.75	0	0	0	1.94	3.88	3.29
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			21			65.5			77.5			39	50.75	25.54	
Forbs															
LGS*	4	0.5	2.25	0	0	0	3.5	0	1.75	0	0	0	1.00	1.17	1.70
WDS*	15.5	0	7.75	0	0	0	0	0	0	38	3.5	20.75	7.13	9.79	12.10
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			10			0			1.75			20.75	8.13	9.48	
TOTAL COVER			31			65.5			79.25			59.75	58.88	20.30	

*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	33			33			33			33					
Treatment	I			I			I			I					
Seed Mix	1			1			1			1					
Replication	1			2			3			4					
Plot	1			10			13			22			treatment	treatment	Relative
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.	Cover
Plant Species															
Grasses															

Ag sm	15.5	3.5	9.5	15.5	0	7.75	3.5	0	1.75	0.5	0	0.25	4.81	4.50	8.38
Ag tra	0	0	0	0	0	0	15.5	3.5	9.5	0	0	0	2.38	4.75	4.13
Di sp	0	0	0	0	0	0	0	0	0	38	38	38	9.50	19.00	16.54
El ci	15.5	38	26.75	15.5	38	26.75	0	38	19	15.5	15.5	15.5	22.00	5.67	38.30
Po co	0	0	0	0	0	0	0	0.5	0.25	0	0	0	0.06	0.13	0.11
Sa ve	0	0	0	38	3.5	20.75	0	15.5	7.75	15.5	3.5	9.5	9.50	8.56	16.54
Si hy	3.5	0	1.75	0	3.5	1.75	15.5	0.5	8	0	3.5	1.75	3.31	3.13	5.77
NSG*	3.5	0	1.75	0	0	0	0	0	0	0	0	0	0.44	0.88	0.76
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			39.75			57			46.25			65	52.00	11.21	
Forbs															

LGS*	0.5	0	0.25	0	0	0	0.5	0	0.25	0	15.5	7.75	2.06	3.79	3.59
WDS*	0	0	0	15.5	3.5	9.5	4	0	2	3.5	0.5	2	3.38	4.19	5.88
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			0.25			9.5			2.25			9.75	5.44	4.90	
TOTAL COVER			40			66.5			48.5			74.75	57.44	15.98	

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	33			33			33			33				
Treatment	C			C			C			C				
Seed Mix	1			1			1			1				
Replication	1			2			3			4				
Plot	4			12			16			20			treatment	treatment	Relative
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.	Cover
Plant Species															
Grasses															

Ag sm	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Ag tra	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
De ca	0	0	0	0	0	0	0.5	0	0.25	0	0	0	0.06	0.13	0.53
Di sp	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	0	0	0	11.63	7.75	99.44
El ci	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Po co	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			15.5			15.5			15.75			0	11.69	7.79	
Forbs															

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	ERR
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	ERR
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	ERR
Total			0			0			0			0	0.00	0.00	
TOTAL COVER			15.5			15.5			15.75			0	11.69	7.79	

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	33			33			33			33					
Treatment	D			D			D			D					
Seed Mix	1			1			1			1					
Replication	1			2			3			4					
Plot	2			8			17			23			treatment	treatment	Relative
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.	Cover
Plant Species															
Grasses															

Ag sm	0	0	0	0	15.5	7.75	15.5	0	7.75	15.5	0	7.75	5.81	3.88	7.86
Ag tra	0	0	0	0	0	0	0	0	0	0	0.5	0.25	0.06	0.13	0.08
Di sp	0	0	0	0	15.5	7.75	15.5	0	7.75	15.5	0	7.75	5.81	3.88	7.86
El ci	38	38	38	38	3.5	20.75	0	3.5	1.75	38	38	38	24.63	17.28	33.30
Po co	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Sa ve	0	0	0	0.5	0	0.25	62	62	62	0	0	0	15.56	30.96	21.05
Si hy	0	0	0	0	0	0	0	0	0	0	38	19	4.75	9.50	6.42
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			38			36.5			79.25			72.75	56.63	22.54	
Forbs															

LGS*	0	0	0	38	62	50	0	0	0	15.5	3.5	9.5	14.88	23.84	20.12
WDS*	0	0	0	0	0	0	0.5	0	0.25	0	19	9.5	2.44	4.71	3.30
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			0			50			0.25			19	17.31	23.54	
TOTAL COVER			38			86.5			79.5			91.75	73.94	24.48	

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	33			33			33			33					
Treatment	T			T			T			T					
Seed Mix	2			2			2			2					
Replication	1			2			3			4					
Plot	6			9			14			19			treatment	treatment	Relative
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.	Cover
Plant Species															
Grasses															

Ag ri	38	0	19	0	0	0	0	3.5	1.75	0	3.5	1.75	5.63	8.95	10.08
Ag tri	0	15.5	7.75	0	62	31	3.5	15.5	9.5	15.5	38	26.75	18.75	11.84	33.60
De ca	0	0	0	0	0	0	0	0	0	0	15.5	7.75	1.94	3.88	3.47
El an	38	3.5	20.75	38	3.5	20.75	38	38	38	38	0	19	24.63	8.95	44.12
El ci	0	0	0	15.5	0	7.75	0	0	0	0	0	0	1.94	3.88	3.47
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			47.5			59.5			49.25			55.25	52.88	5.52	
Forbs															

LGS*	0	3.5	1.75	3.5	0.5	2	0.5	0	0.25	0	0.5	0.25	1.06	0.94	1.90
WDS*	1	3.5	2.25	0	0	0	3.5	0	1.75	3.5	3.5	3.5	1.88	1.45	3.36
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			4			2			2			3.75	2.94	1.09	
TOTAL COVER			51.5			61.5			51.25			59	55.81	5.23	

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	33			33			33			33					
Treatment	A			A			A			A					
Seed Mix	2			2			2			2					
Replication	1			2			3			4					
Plot	5			7			18			21					
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	treatment mean	treatment std.dev.	Relative Cover
Plant Species															
Grasses															

Ag ri	38	0	19	0	0	0	0	0	0	38	15.5	26.75	11.44	13.58	21.53
Ag tra	0	0	0	0	0	0	0	3.5	1.75	0	0	0	0.44	0.88	0.82
Ag tri	38	0	19	0.5	38	19.25	3.5	15.5	9.5	0	3.5	1.75	12.38	8.41	23.29
De ca	0	3.5	1.75	0	0	0	0	0	0	0	0	0	0.44	0.88	0.82
Di sp	0	0	0	15.5	3.5	9.5	3.5	3.5	3.5	0.5	0	0.25	3.31	4.42	6.23
El an	38	0.5	19.25	15.5	38	26.75	15.5	0	7.75	15.5	15.5	15.5	17.31	7.91	32.59
Sa ve	0	0	0	3.5	3.5	3.5	0	3.5	1.75	3.5	3.5	3.5	2.19	1.68	4.12
Si hy	0	0	0	0	0	0	0	3.5	1.75	3.5	0	1.75	0.88	1.01	1.65
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			59			59			26			49.5	48.38	15.57	
Forbs															

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
WDS*	0	0	0	3.5	15.5	9.5	0	0	0	3.5	15.5	9.5	4.75	5.48	8.94
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			0			9.5			0			9.5	4.75	5.48	
TOTAL COVER			59			68.5			26			59	53.13	18.63	

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	33			33			33			33					
Treatment	I			I			I			I					
Seed Mix	2			2			2			2					
Replication	1			2			3			4					
Plot	1			10			13			22			treatment	treatment	Relative
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.	Cover
Plant Species															
Grasses															

Ag ri	3.5	0	1.75	0	3.5	1.75	3.5	0	1.75	15.5	0	7.75	3.25	3.00	4.40
Ag tri	15.5	38	26.75	3.5	0	1.75	15.5	0	7.75	0	0	0	9.06	12.25	12.28
De ca	0	0.5	0.25	0	0	0	0	3.5	1.75	0	0	0	0.50	0.84	0.68
Di sp	0	0	0	0	0	0	0	15.5	7.75	15.5	38	26.75	8.63	12.62	11.69
El an	38	0.5	19.25	15.5	38	26.75	62	85.5	73.75	3.5	62	32.75	38.13	24.38	51.65
Sa ve	0	0	0	38	15.5	26.75	0	0	0	15.5	38	26.75	13.38	15.44	18.12
NSG*	0	0	0	0	0	0	3.5	0	1.75	0	0	0	0.44	0.88	0.59
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			48			57			94.5			94	73.38	24.38	
Forbs															

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
WDS*	0	0	0	0	3.5	1.75	0	0	0	0	0	0	0.44	0.88	0.59
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			0			1.75			0			0	0.44	0.88	
TOTAL COVER			48			58.75			94.5			94	73.81	24.00	

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	33			33			33			33					
Treatment	C			C			C			C					
Seed Mix	2			2			2			2					
Replication	1			2			3			4					
Plot	4			12			16			20			treatment	treatment	Relative
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.	Cover
Plant Species															
Grasses															

Ag ri	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Ag tri	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
De ca	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Di sp	15.5	38	26.75	15.5	3.5	9.5	15.5	15.5	15.5	0	0	0	12.94	11.20	99.98
El an	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			26.75			9.5			15.5			0	12.94	11.20	
Forbs															

LGS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	ERR
WDS*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	ERR
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	ERR
Total			0			0			0			0	0.00	0.00	
TOTAL COVER			26.75			9.5			15.5			0	12.94	11.20	

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

STARS VEGETATION COVER
1991 Data (% Aerial Cover)

Site	33			33			33			33					
Treatment	D			D			D			D					
Seed Mix	2			2			2			2					
Replication	1			2			3			4					
Plot	2			8			17			23			treatment	treatment	Relative
Frame	1	2	mean	1	2	mean	1	2	mean	1	2	mean	mean	std.dev.	Cover
Plant Species															
Grasses															

Ag ri	0	0	0	0	0	0	0.5	0	0.25	0	0	0	0.06	0.13	0.08
Ag tri	0	0	0	3.5	3.5	3.5	15.5	15.5	15.5	15.5	0	7.75	6.69	6.68	9.02
De ca	0	15.5	7.75	0	0	0	0	0	0	0	0	0	1.94	3.88	2.61
Di sp	0	0	0	0	3.5	1.75	3.5	0	1.75	0	0	0	0.88	1.01	1.18
El an	38	15.5	26.75	62	62	62	3.5	38	20.75	85.5	85.5	85.5	48.75	30.52	65.76
Sa ve	0	0	0	0	0.5	0.25	38	15.5	26.75	0	38	19	11.50	13.51	15.51
NSG*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			34.5			67.5			65			112.25	69.81	32.02	
Forbs															

LGS*	0	0	0	15.5	0	7.75	0	0	0	0	0	0	1.94	3.88	2.61
WDS*	3.5	0	1.75	0	15.5	7.75	0	0	0	0	0	0	2.38	3.68	3.20
UNK*	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Total			1.75			15.5			0			0	4.31	7.50	
TOTAL COVER			36.25			83			65			112.25	74.13	31.89	

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*NSG = Nonseeded Grasses
LGS = Seeded Legumes
WDS = Nonseeded Weedy Forbs
UNK = Unknown

APPENDIX D5

PRODUCTION 1991

STARS VEGETATION PRODUCTION

Site	7				7				7				7				
Treatment	A				A				A				A				
Seed Mix	1				1				1				1				
Replication	1				2				3				4				
Plot	1				10				16				23				treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	108.54	44.57	76.56	3062	6.98	27.55	17.27	691	98.28	149.48	123.88	4955	68.07	20.64	44.36	1774	2621
El an	10.52	2.86	6.69	268	0	25.73	12.87	515	1.95	0.41	1.18	47	0.89	0	0.45	18	212
Fe ov	0	2.57	1.29	51	1.85	0	0.93	37	0.11	2.65	1.38	55	0.7	4.41	2.56	102	61
forb	0.02	0.09	0.06	2	0.07	2.57	1.32	53			0.00	0			0.00	0	14
Ag da	4.07	9	6.54	261	3.84	9.14	6.49	260	0.02		0.01	0	0.4		0.20	8	132
Me of	1.46	0.07	0.77	31			0.00	0			0.00	0			0.00	0	8
El ci	0.3	0	0.15	6			0.00	0			0.00	0			0.00	0	2
De ca	14.75	0	7.38	295			0.00	0			0.00	0			0.00	0	74
Ju ba	1.76	0	0.88	35			0.00	0			0.00	0			0.00	0	9
Po co	0.06	0	0.03	1	1.54	3.33	2.44	97			0.00	0			0.00	0	25
Ag te			0.00	0			0.00	0	0.09		0.05	2		1.57	0.79	31	8
El gi			0.00	0			0.00	0			0.00	0	1.68	1.11	1.40	56	14
TOTAL			23.77	951			24.04	961			2.62	105			5.38	215	558
(excludes litter)				882.6				908.6				104.6				215.2	
				68				52.8				0				0	

STARS VEGETATION PRODUCTION

Site	7				7				7				7				
Treatment	C				C				C				C				
Seed Mix	1				1				1				1				
Replication	1				2				3				4				
Plot	2				11				17				21				treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	13.05	8.54	10.80	432	0.68	0.79	0.74	29	60.07	0.45	30.26	1210	45.51	54.53	50.02	2001	918
El an	4.06	0	2.03	81	1.15	0	0.58	23	0	0	0.00	0	0	0	0.00	0	26
Fe ov	0.01	0	0.01	0	0	0	0.00	0	0	0	0.00	0	0.86	0	0.43	17	4
El ci	0.01	0	0.01	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0
TOTAL (excludes litter)			2.04	82			0.58	23			0.00	0			0.43	17	30

STARS VEGETATION PRODUCTION

Site	7				7				7				7				
Treatment	D				D				D				D				
Seed Mix	1				1				1				1				
Replication	1				2				3				4				
Plot	3				9				14				20				treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	45.92	83.94	64.93	2597	83.36	34.64	59.00	2360	62.74	110.48	86.61	3464	25.68	31.67	28.68	1147	2392
El an	0	3.63	1.82	73	105.4	78.78	92.09	3684	0.28	5.06	2.67	107	9.62	28.47	19.05	762	1156
Fe ov	0.32	0	0.16	6	0	0	0.00	0	0.35	0	0.18	7	4.49	0.5	2.50	100	28
Ag da	8.37	8.91	8.64	346	16.14	16.87	16.51	660	1.17	0.79	0.98	39	3.33	4.73	4.03	161	302
Me sa	3.26	0	1.63	65	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	16
Me of	0	0.32	0.16	6	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	2
Forb	0	0	0.00	0	0	0	0.00	0	0	0.01	0.01	0	0	0	0.00	0	0
Ag te	0	0	0.00	0	0	0	0.00	0	0.27	0.87	0.57	23	0	0	0.00	0	6
El gi	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	2.39	5.29	3.84	154	38
TOTAL			12.41	496			108.60	4344			4.40	176			29.41	1176	1548
(excludes litter)				424.6				4343.8				175.8				1176.4	
				71.6				0				0.2				0	

STARS VEGETATION PRODUCTION

Site	7				7				7				7			
Treatment	I				I				I				I			
Seed Mix	1				1				1				1			
Replication	1				2				3				4			
Plot	5				8				18				22			treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	32.44	17.93	25.19	1007	8.79	12.69	10.74	430	8.65	2.84	5.75	230	4.03	5.95	4.99	200	467
El an	36.82	22.23	29.53	1181	0	0	0.00	0	0.28	2.02	1.15	46	1.06	0.78	0.92	37	316
Ag da	21.9	7.92	14.91	596	0	0	0.00	0	0	1.06	0.53	21	1.97	1.01	1.49	60	169
Me of	0.1	0.11	0.11	4	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	1
Forb	0.06	0.51	0.29	11	0	0	0.00	0	0	0	0.00	0	0.04	0	0.02	1	3
Ag te	2.91	0	1.46	58	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	15
Po co	1.14	0	0.57	23	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	6
El gi	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0.51	4.59	2.55	102	26
TOTAL			46.85	1874			0.00	0			1.68	67			4.98	199	535
(excludes litter)																	
				1858.4				0				67.2				198.4	
				15.6				0				0				0.8	

STARS VEGETATION PRODUCTION

Site	7				7				7				7				
Treatment	T				T				T				T				
Seed Mix	1				1				1				1				
Replication	1				2				3				4				
Plot	6				12				13				19				treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	84.9	83.03	83.97	3359	34.98	81	57.99	2320	61.67	169.01	115.34	4614	144.11	0	72.06	2882	3294
El an	8.13	14.59	11.36	454	23.64	10.66	17.15	686	41.07	26.06	33.57	1343	0	0	0.00	0	621
Fe ov	3.05	3.03	3.04	122	7.23	7.28	7.26	290	5.05	0.55	2.80	112	0	0	0.00	0	131
Ag da	32.39	10.41	21.40	856	10.16	20.61	15.39	615	1.89	17.95	9.92	397	2.96	0	1.48	59	482
Me sa	0	0	0.00	0	0	0	0.00	0	0	1.72	0.86	34	0	0	0.00	0	9
Me of	0	0	0.00	0	0	0	0.00	0	0	9.52	4.76	190	2.08	0	1.04	42	58
Forb	0.83	0.98	0.91	36	0	4.95	2.48	99	5.75	40.85	23.30	932	32.93	0	16.47	659	431
El gi	1.08	0	0.54	22	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	5
Ag cr	0	0	0.00	0	0.51	0	0.26	10	0	0	0.00	0	0	0	0.00	0	3
TOTAL			37.25	1490			42.52	1701			75.21	3008			18.99	759	1740
(excludes litter)				1453.6				1601.8				1851.4				59.2	
				36.2				99				1156.8				700.2	

STARS VEGETATION PRODUCTION

Site	7				7				7				7				
Treatment	A				A				A				A				
Seed Mix	2				2				2				2				
Replication	1				2				3				4				
Plot	1				10				16				23				treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	44.8	11.78	28.29	1132	35.69	158.28	96.99	3879	71.26	42.9	57.08	2283	64.12	30.99	47.56	1902	2299
El ci	0.65	0	0.33	13	35.27	2.4	18.84	753	0.09	0.44	0.27	11	0	0.24	0.12	5	195
Me of	0.01	0	0.01	0	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0
Ag da	11.6	0.47	6.04	241	3.13	0	1.57	63	1.1	0	0.55	22	0.04	0.34	0.19	8	83
Po co	0.96	0	0.48	19	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	5
El gi	10.53	7.44	8.99	359	23.44	18.2	20.82	833	0.55	0.69	0.62	25	14.59	8.19	11.39	456	418
Me sa	1.38	1.21	1.30	52	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	13
Ag te	0	0.43	0.22	9	0	0	0.00	0	0.05	0	0.03	1	0	0	0.00	0	2
De ca	0	4.18	2.09	84	0	0.38	0.19	8	0	0	0.00	0	0	0	0.00	0	23
Unk PG	0	0	0.00	0	0	15.93	7.97	319	0	0	0.00	0	0	0	0.00	0	80
Fe lo	0	0	0.00	0	0	4.42	2.21	88	0	0.01	0.01	0	0	0	0.00	0	22
Forb	0	0	0.00	0	2.37	0	1.19	47	0.82	0	0.41	16	0	0	0.00	0	16
TOTAL			19.43	777			52.77	2111			1.88	75			11.70	468	858
(excludes litter)																	
				725.2				2063.4				58.6				468	
				52				47.4				16.4				0	

STARS VEGETATION PRODUCTION

Site	7				7				7				7				
Treatment	C				C				C				C				
Seed Mix	2				2				2				2				
Replication	1				2				3				4				
Plot	2				11				17				21				treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	7.15	10.75	8.95	358	0.3	4.51	2.41	96	69.75	39.78	54.77	2191	25.41	23.84	24.63	985	907
Forb	0	0.09	0.05	2	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0
Ag da	0	1.68	0.84	34	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	8
TOTAL (excludes litter)			0.89	35			0.00	0			0.00	0			0.00	0	9

STARS VEGETATION PRODUCTION

Site	7				7				7				7				
Treatment	D				D				D				D				
Seed Mix	2				2				2				2				
Replication	1				2				3				4				
Plot	3				9				14				20				treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	60.49	57.99	59.24	2370	74.51	20.81	47.66	1906	70.81	39.8	55.31	2212	42.41	39.56	40.99	1639	2032
El ci	5.22	0	2.61	104	16.54	2.13	9.34	373	0.53	0.09	0.31	12	0	6.8	3.40	136	157
Ag da	12.13	4.81	8.47	339	21.35	15.28	18.32	733	0.13	1.33	0.73	29	3.45	1.53	2.49	100	300
Po co	0	0.28	0.14	6	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	1
El gi	4.39	3.4	3.90	156	36.6	8.58	22.59	904	2.42	8.22	5.32	213	23.65	57.44	40.55	1622	724
Me sa	8.42	0	4.21	168	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	42
Forb	0.04	0.03	0.04	1	0	0	0.00	0	0	0	0.00	0	0.13	0	0.07	3	1
Lo co	0.73	0.01	0.37	15	0.04	0.05	0.05	2	0	0	0.00	0	0	0	0.00	0	4
Fe lo	3.13	0.67	1.90	76	0	0	0.00	0	0	1.09	0.55	22	0	0	0.00	0	24
De ca	0	0	0.00	0	0	0.03	0.02	1	0	0	0.00	0	0	0	0.00	0	0
Ag te	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0.22	0.11	4	1
Unk PG	0	0	0.00	0	0	0.26	0.13	5	0	0	0.00	0	0	0	0.00	0	1
Fe ov	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0.5	0	0.25	10	3
TOTAL			21.63	865			50.43	2017			6.91	276			46.86	1874	1258
(excludes litter)																	
				680.6				2015.4				276.2				1871.8	
				184.6				1.8				0				2.6	

STARS VEGETATION PRODUCTION

Site	7				7				7				7			
Treatment	I				I				I				I			
Seed Mix	2				2				2				2			
Replication	1				2				3				4			
Plot	5				8				18				22			treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	29.41	6.04	17.73	709	3.92	0.76	2.34	94	6.6	21.44	14.02	561	3.09	22.49	12.79	512	469
El ci	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	1.35	0.88	1.12	45	11
Ag da	1.11	0	0.56	22	0	0	0.00	0	0.9	0.91	0.91	36	0	0.6	0.30	12	18
El gi	0.44	0	0.22	9	0	0	0.00	0	1.31	10.46	5.89	235	8.37	7.82	8.10	324	142
Forb	0	0	0.00	0	0	0	0.00	0	0.1	0	0.05	2	0	0	0.00	0	1
TOTAL			0.78	31			0.00	0			6.84	274			9.51	380	171
(excludes litter)																	
				31				0				271.6				380.4	
				0				0				2				0	

STARS VEGETATION PRODUCTION

Site	7				7				7				7				
Treatment	T				T				T				T				
Seed Mix	2				2				2				2				
Replication	1				2				3				4				
Plot	6				12				13				19				treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	48.35	39.93	44.14	1766	61.19	35.05	48.12	1925	94.71	102.93	98.82	3953	102.22	154.08	128.15	5126	3192
El ci	36.94	4.09	20.52	821	22.41	13.83	18.12	725	0.66	18.41	9.54	381	0	0.57	0.29	11	485
Ag da	6.98	12.51	9.75	390	0	0.95	0.48	19	15.45	11.4	13.43	537	1.94	2.32	2.13	85	258
El gi	0	0	0.00	0	0.56	0	0.28	11	0	0	0.00	0	0	0	0.00	0	3
Me sa	0	0	0.00	0	1.41	12.96	7.19	287	0	3.05	1.53	61	0	0	0.00	0	87
Forb	4.5	4.89	4.70	188	0	0	0.00	0	95.05	51.43	73.24	2930	31.44	11.35	21.40	856	993
Fe lo	0	0	0.00	0	0	6.26	3.13	125	2.22	0	1.11	44	0	0	0.00	0	42
Fe ov	0.2	0.66	0.43	17	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	4
Me of	0	0.18	0.09	4	0	0	0.00	0	6.89	0	3.45	138	0.65	0.61	0.63	25	42
Ce sp	0	0	0.00	0	7.13	0	3.57	143	0	0	0.00	0	0	0	0.00	0	36
Br te	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0.18	0.09	4	1
TOTAL			35.48	1419			32.76	1310			102.28	4091			24.53	981	1950
(excludes litter)																	
				1227.6				880.2				962.8				96.6	
				191.4				430				3128.4				884.6	

STARS VEGETATION PRODUCTION

Site	21				21				21				21				
Treatment	A				A				A				A				
Seed Mix	1				1				1				1				
Replication	1				2				3				4				
Plot	5				9				15				23				treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	69.39	71.83	70.61	2824	90.73	89.6	90.17	3607	59.46	11.11	35.29	1411	23.35	30.37	26.86	1074	2229
Ag el	56.07	59.48	57.78	2311	3.7	11.12	7.41	296	33.31	49.46	41.39	1655	74.46	83.92	79.19	3168	1858
Di sp	0.48	0	0.24	10	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	2
De ca	0	0	0.00	0	0	0	0.00	0	3.13	0	1.57	63	0	0	0.00	0	16
Kochia sp.	0	0	0.00	0	0	0	0.00	0	0	0.52	0.26	10	0	0	0.00	0	3
Ag ri	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	1.39	0	0.70	28	7
TOTAL			58.02	2321			7.41	296			43.21	1728			79.89	3195	1885
(excludes litter)																	
				2320.6				296.4				1718				3195.4	
				0				0				10.4				0	

STARS VEGETATION PRODUCTION

Site	21				21				21				21				
Treatment	C				C				C				C				
Seed Mix	1				1				1				1				
Replication	1				2				3				4				
Plot	6				10				18				20				treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	61.87	46.25	54.06	2162	16.13	15.38	15.76	630	1.26	7.54	4.40	176	57.14	44.03	50.59	2023	1248
TOTAL (excludes litter)			ERR	ERR			ERR	ERR			ERR	ERR			ERR	ERR	ERR

STARS VEGETATION PRODUCTION

Site	21				21				21				21				
Treatment	D				D				D				D				
Seed Mix	1				1				1				1				
Replication	1				2				3				4				
Plot	2				7				17				21				treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	9.3	77.19	43.25	1730	53.96	124.91	89.44	3577	28.77	26.44	27.61	1104	111.74	15.41	63.58	2543	2239
Ag el	89.31	146.97	118.14	4726	78	88.4	83.20	3328	11.49	26.85	19.17	767	56.48	27.76	42.12	1685	2626
De ca	3.42	0.99	2.21	88	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	22
Ag ri	0	1.9	0.95	38	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	10
Forb	2.75	1.39	2.07	83	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	21
Da gl	0	10.86	5.43	217	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	54
Unk PG	0	0	0.00	0	0	9.08	4.54	182	0	0	0.00	0	2.96	0	1.48	59	60
Kochia	0	0	0.00	0	0	0	0.00	0	0	0.43	0.22	9	9.53	0	4.77	191	50
Ag cr	0	0	0.00	0	0	0	0.00	0	16.89	0.51	8.70	348	0	0	0.00	0	87
Me of	0	0	0.00	0	0	0	0.00	0	0.29	0	0.15	6	0	0	0.00	0	1
TOTAL			128.80	5152			87.74	3510			28.23	1129			48.37	1935	2931
(excludes litter)				4851.8				3509.6				1114.8				1744	
				300				0				14.4				190.6	

STARS VEGETATION PRODUCTION

Site	21				21				21				21				
Treatment	I				I				I				I				
Seed Mix	1				1				1				1				
Replication	1				2				3				4				
Plot	4				11				14				24				treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	45.03	105.02	75.03	3001	54.1	33.47	43.79	1751	46.18	18.98	32.58	1303	29.3	32.55	30.93	1237	1823
Ag el	73.43	41.94	57.69	2307	14.01	37.8	25.91	1036	21.69	10.96	16.33	653	74.68	125.9	100.29	4012	2002
Ag ri	0	2.97	1.49	59	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	15
Si hy	16.53	0	8.27	331	0	0	0.00	0	0	0	0.00	0	0	2.62	1.31	52	96
Forb	0	0	0.00	0	0.37	1.39	0.88	35	0	0	0.00	0	0	0	0.00	0	9
Ag cr	0	0	0.00	0	0	2.46	1.23	49	0	0	0.00	0	0	0.56	0.28	11	15
Kochia sp.	0	0	0.00	0	0	0	0.00	0	0	2.5	1.25	50	0	0	0.00	0	13
TOTAL			67.44	2697			28.02	1121			17.58	703			101.88	4075	2149
(excludes litter)																	
				2697.4				1085.4				653				4075.2	
				0				35.2				50				0	

STARS VEGETATION PRODUCTION

Site	21				21				21				21				
Treatment	T				T				T				T				
Seed Mix	1				1				1				1				
Replication	1				2				3				4				
Plot	1				12				13				19				treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	87.2	72.03	79.62	3185	92.69	84.27	88.48	3539	81.84	87.47	84.66	3386	44.02	144.37	94.20	3768	3469
Ag el	22.66	29.16	25.91	1036	43.16	89.13	66.15	2646	4.4	19.05	11.73	469	5.39	4.31	4.85	194	1086
Ag ri	10.09	2.38	6.24	249	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	62
Ag cr	10.51	7	8.76	350	21.17	9.81	15.49	620	69.96	27.25	48.61	1944	33.37	45.97	39.67	1587	1125
Forb	0	0	0.00	0	2.94	0	1.47	59	2.11	0.2	1.16	46	0	0	0.00	0	26
Me of	0	0	0.00	0	0	0.15	0.08	3	0	0	0.00	0	0	0	0.00	0	1
TOTAL			40.90	1636			83.18	3327			61.49	2459			44.52	1781	2301
(excludes litter)																	
				1636				3265.4				2413.2				1780.8	
				0				61.8				46.2				0	

STARS VEGETATION PRODUCTION

Site	21				21				21				21				
Treatment	A				A				A				A				
Seed Mix	2				2				2				2				
Replication	1				2				3				4				
Plot	5				9				15				23				treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	73.56	130.12	101.84	4074	117.71	78.91	98.31	3932	10.7	22.52	16.61	664	104.09	91.95	98.02	3921	3148
El ju	88.58	0	44.29	1772	0	0	0.00	0	0	0	0.00	0	16.17	41.04	28.61	1144	729
Ag in	0	34.02	17.01	680	8.69	11.6	10.15	406	35.2	10.98	23.09	924	69.68	91.07	80.38	3215	1306
Ag de	0	4.07	2.04	81	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	20
De ca	0	0	0.00	0	0	1.91	0.96	38	0	0	0.00	0	0	0	0.00	0	10
Kochia sp.	0	0	0.00	0	0	0	0.00	0	0.61	0	0.31	12	0	0	0.00	0	3
TOTAL			63.34	2533			11.10	444			23.40	936			108.98	4359	2068
(excludes litter)																	
				2533.4				444				923.6				4359.2	
				0				0				12.2				0	

STARS VEGETATION PRODUCTION

Site	21				21				21				21				
Treatment	C				C				C				C				
Seed Mix	2				2				2				2				
Replication	1				2				3				4				
Plot	6				10				18				20				treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	44.85	45.88	45.37	1815	49.35	41.82	45.59	1823	8.27	5.02	6.65	266	16.56	25.7	21.13	845	1187
TOTAL (excludes litter)			ERR	ERR			ERR	ERR			ERR	ERR			ERR	ERR	ERR

STARS VEGETATION PRODUCTION

Site	21				21				21				21				
Treatment	D				D				D				D				
Seed Mix	2				2				2				2				
Replication	1				2				3				4				
Plot	2				7				17				21				treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	71.55	82.37	76.96	3078	17.6	12.06	14.83	593	13.6	44.85	29.23	1169	53.46	71.43	62.45	2498	1835
El ju	32.38	24.97	28.68	1147	0	0	0.00	0	0	0	0.00	0	11.03	25.1	18.07	723	467
Ag in	19.86	68.03	43.95	1758	9.81	30.74	20.28	811	13.43	78.09	45.76	1830	85.5	15.5	50.50	2020	1605
Ag de	9.88	3.24	6.56	262	0.73	1.23	0.98	39	0	1.84	0.92	37	0	0	0.00	0	85
Ag tri	2.55	0	1.28	51	0	0	0.00	0	0	11.79	5.90	236	0	0	0.00	0	72
Forb	0	3.48	1.74	70	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	17
Unk PG	1.39	14.83	8.11	324	0	0	0.00	0	0	5.72	2.86	114	3.06	0	1.53	61	125
TOTAL			90.31	3612			21.26	850			55.44	2217			70.10	2804	2371
(excludes litter)																	
				3542.6				850.2				2217.4				2803.8	
				69.6				0				0				0	

STARS VEGETATION PRODUCTION

Site	21				21				21				21			
Treatment	I				I				I				I			
Seed Mix	2				2				2				2			
Replication	1				2				3				4			
Plot	4				11				14				24			treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	84.24	31.73	57.99	2319	27.29	35.45	31.37	1255	31.72	33.56	32.64	1306	54.45	21.27	37.86	1514	1599
El ju	12.69	65.7	39.20	1568	0	0	0.00	0	0	0	0.00	0	14.19	2.61	8.40	336	476
Ag in	24.47	6.89	15.68	627	6.85	8.81	7.83	313	1.67	2.23	1.95	78	41.71	67.49	54.60	2184	801
Ag cr	0	0	0.00	0	0	3.67	1.84	73	0	0	0.00	0	0	0	0.00	0	18
Forb	0	0	0.00	0	0.36	0	0.18	7	0	0	0.00	0	0	0	0.00	0	2
Ag de	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0.91	0	0.46	18	5
TOTAL			54.88	2195			9.85	394			1.95	78			63.45	2538	1301
(excludes litter)																	
				2195				386.6				78				2538.2	
				0				7.2				0				0	

STARS VEGETATION PRODUCTION

Site	21				21				21				21				
Treatment	T				T				T				T				
Seed Mix	2				2				2				2				
Replication	1				2				3				4				
Plot	1				12				13				19				treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	59.52	104.95	82.24	3289	47	43.75	45.38	1815	119.96	63.87	91.92	3677	95.45	92.89	94.17	3767	3137
Ag in	9.4	31.67	20.54	821	37.6	20.41	29.01	1160	25.39	12.87	19.13	765	1.96	16.28	9.12	365	778
Ag de	26.1	5.96	16.03	641	38.24	0	19.12	765	36.71	15.51	26.11	1044	18.35	20.24	19.30	772	806
Ag tri	10.37	1.77	6.07	243	0	2.99	1.50	60	0.88	28.08	14.48	579	4.12	0.62	2.37	95	244
Forb	0.32	0	0.16	6	0.38	1.31	0.85	34	0.23	0	0.12	5	0	0	0.00	0	11
Ag cr	0	0	0.00	0	0	25.51	12.76	510	0	0	0.00	0	0	0	0.00	0	128
Unk PG	0	0	0.00	0	0	2.2	1.10	44	2.45	4.7	3.58	143	0	0	0.00	0	47
Si hy	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0.76	0	0.38	15	4
TOTAL			42.80	1712			64.32	2573			63.41	2536			31.17	1247	2017
(excludes litter)																	
				1705.4				2539				2531.8				1246.6	
				6.4				33.8				4.6				0	

STARS VEGETATION PRODUCTION

Site	27				27				27				27				
Treatment	A				A				A				A				
Seed Mix	1				1				1				1				
Replication	1				2				3				4				
Plot	4				7				17				19				treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	11.51	73.05	42.28	1691	19.37	75.15	47.26	1890	66.71	59.99	63.35	2534	12.87	15.9	14.39	575	1673
Ag de	74.94	63.2	69.07	2763	96.25	119.34	107.80	4312	132.15	65.63	98.89	3956	81.71	5.06	43.39	1735	3191
Ag sm	6.08	0	3.04	122	0	0	0.00	0	1.45	0	0.73	29	0	0	0.00	0	38
Ag in	0	1.46	0.73	29	9.28	12.68	10.98	439	6.79	7.34	7.07	283	1.1	15.14	8.12	325	269
Forb	3.36	0	1.68	67	1.06	0	0.53	21	0.21	0	0.11	4	0	0.16	0.08	3	24
El an	0	9.36	4.68	187	0	0	0.00	0	20.09	13.05	16.57	663	0	0	0.00	0	213
Br in	0	0	0.00	0	0	0	0.00	0	0	1.14	0.57	23	0	0	0.00	0	6
De ca	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0.31	2.22	1.27	51	13
Ag te	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	1.79	0.81	1.30	52	13
Equisetum s	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	2.68	0	1.34	54	13
Poa sp.	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	17.11	0	8.56	342	86
TOTAL			79.20	3168			119.31	4772			123.93	4957			64.05	2562	3865
(excludes litter)				3100.8				4751				4952.8				2505	
				67.2				21.2				4.2				56.8	

STARS VEGETATION PRODUCTION

Site	27				27				27				27				
Treatment	C				C				C				C				
Seed Mix	1				1				1				1				
Replication	1				2				3				4				
Plot	2				10				14				21				treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	25.38	47.46	36.42	1457	69.65	27.34	48.50	1940	0	0	0.00	0	58.87	71.5	65.19	2607	1501
Ag sm	6.59	3.42	5.01	200	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	50
Forb	0.03	0	0.02	1	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0
El an	0	2.35	1.18	47	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	12
De ca	0	0.67	0.34	13	0.14	0	0.07	3	0	0	0.00	0	2.22	10.16	6.19	248	66
Ju ba	12.39	0	6.20	248	3.86	0	1.93	77	0	0	0.00	0	0	0	0.00	0	81
TOTAL			12.73	509			2.00	80			0.00	0			6.19	248	209
(excludes litter)																	
				260.6				2.8				0				247.6	
				248.4				77.2				0				0	

STARS VEGETATION PRODUCTION

Site	27				27				27				27				
Treatment	D				D				D				D				
Seed Mix	1				1				1				1				
Replication	1				2				3				4				
Plot	5				11				16				22				treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	61.38	28.85	45.12	1805	45.54	10.54	28.04	1122	77.79	80.24	79.02	3161	26.07	24.33	25.20	1008	1774
Ag de	73.65	120.17	96.91	3876	82.88	10.67	46.78	1871	112.46	123.95	118.21	4728	115.51	135.08	125.30	5012	3872
Ag sm	1.06	0	0.53	21	0	0	0.00	0	1.17	0.63	0.90	36	0	0	0.00	0	14
Ag in	0	0	0.00	0	12.69	1.85	7.27	291	9.14	4.89	7.02	281	4.9	0	2.45	98	167
Forb	0	0	0.00	0	0.32	0.79	0.56	22	0	0	0.00	0	0	0	0.00	0	6
El an	0	0	0.00	0	7.07	0	3.54	141	1.27	13.19	7.23	289	0	17.5	8.75	350	195
TOTAL			97.44	3898			58.14	2325			133.35	5334			136.50	5460	4254
(excludes litter)																	
				3897.6				2303.2				5334				5459.8	
				0				22.2				0				0	

STARS VEGETATION PRODUCTION

Site	27				27				27				27				
Treatment	X				X				X				X				
Seed Mix	1				1				1				1				
Replication	1				2				3				4				
Plot	1				9				13				20				treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	20.49	24.01	22.25	890	31.8	31.29	31.55	1262	23.22	26.07	24.65	986	17.18	14.73	15.96	638	944
Ag de	62.59	71.1	66.85	2674	38.61	22.79	30.70	1228	32.93	81.1	57.02	2281	5.02	0	2.51	100	1571
Ag sm	0	0	0.00	0	0.48	0	0.24	10	3.11	7.62	5.37	215	0	0	0.00	0	56
Ag in	6.08	0	3.04	122	2.46	9.07	5.77	231	0	12.29	6.15	246	0	0	0.00	0	150
Forb	0.05	1.35	0.70	28	0	0.16	0.08	3	0.06	0	0.03	1	1.7	0	0.85	34	17
El an	0	0	0.00	0	6.46	9.98	8.22	329	5.85	5.64	5.75	230	0	0	0.00	0	140
De ca	0	3.28	1.64	66	0.9	0	0.45	18	0.68	0	0.34	14	10.96	14.29	12.63	505	151
Ag te	0	0	0.00	0	0	0	0.00	0	0	2.4	1.20	48	0	0	0.00	0	12
Hordeum sp.	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	5.55	0	2.78	111	28
TOTAL			72.23	2889			45.46	1818			75.84	3034			18.76	750	2123
(excludes litter)																	
				2861				1815				3032.4				716.4	
				28				3.2				1.2				34	

STARS VEGETATION PRODUCTION

Site	27				27				27				27				
Treatment	A				A				A				A				
Seed Mix	2				2				2				2				
Replication	1				2				3				4				
Plot	4				7				17				19				treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	27.31	70.92	49.12	1965	51.92	47.07	49.50	1980	30.89	44.3	37.60	1504	11.09	24.57	17.83	713	1540
Ag cr	116	77.69	96.85	3874	26.27	48.15	37.21	1488	22.43	40.09	31.26	1250	0	3.68	1.84	74	1672
El ju	0	20.08	10.04	402	38.72	27.88	33.30	1332	32.41	4.48	18.45	738	40.48	31.25	35.87	1435	977
Ag el	8.75	0	4.38	175	31.07	0	15.54	621	10.93	20.25	15.59	624	14.52	13.22	13.87	555	494
Forb	0.12	0.95	0.54	21	0.32	7.07	3.70	148	0	0	0.00	0	2.57	0.13	1.35	54	56
Ag in	0	9.07	4.54	181	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	45
Ag tri	3.8	0	1.90	76	0	1.6	0.80	32	0	6.5	3.25	130	0	0	0.00	0	60
Me sa	1.1	0	0.55	22	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	6
Br in	0	0	0.00	0	0	0	0.00	0	0	3.4	1.70	68	0	0	0.00	0	17
De ca	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	3.69	1.85	74	18
TOTAL			118.78	4751			90.54	3622			70.25	2810			54.77	2191	3343
(excludes litter)				4707.8				3473.8				2809.8				2136.8	
				43.4				147.8				0				54	

STARS VEGETATION PRODUCTION

Site	27				27				27				27				
Treatment	C				C				C				C				
Seed Mix	2				2				2				2				
Replication	1				2				3				4				
Plot	2				10				14				21				treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	15.88	18.99	17.44	697	37.1	17.52	27.31	1092	0	0	0.00	0	29.6	38.14	33.87	1355	786
Ag sm	1.68	5.79	3.74	149	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	37
Ju ba	0.79	0.98	0.89	35	0.91	1.8	1.36	54	0	0	0.00	0	0	0.37	0.19	7	24
De ca	0	0	0.00	0	1.25	0	0.63	25	0	0	0.00	0	1.94	4.47	3.21	128	38
TOTAL			4.62	185			1.98	79			0.00	0			3.39	136	100
(excludes litter)																	
				149.4				25				0				128.2	
				35.4				54.2				0				7.4	

STARS VEGETATION PRODUCTION

Site	27				27				27				27				
Treatment	D				D				D				D				
Seed Mix	2				2				2				2				
Replication	1				2				3				4				
Plot	5				11				16				22				treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	80.05	36.26	58.16	2326	11.57	70.2	40.89	1635	52.27	110.16	81.22	3249	19.93	35.97	27.95	1118	2082
Ag cr	74.13	79.01	76.57	3063	3.16	6.21	4.69	187	82.96	56.83	69.90	2796	47.16	82.46	64.81	2592	2160
El ju	0	8.01	4.01	160	0	0	0.00	0	3.18	0	1.59	64	22.87	40.35	31.61	1264	372
Ag el	0	0	0.00	0	0.83	23.79	12.31	492	15.75	15.96	15.86	634	0	0	0.00	0	282
Forb	0	0.89	0.45	18	0.11	0.7	0.41	16	0	0	0.00	0	0	0	0.00	0	9
El an	0	0	0.00	0	4.78	38.13	21.46	858	0	0	0.00	0	0	0	0.00	0	215
Ag tri	0	0	0.00	0	0	0	0.00	0	5.46	4.06	4.76	190	2.24	0	1.12	45	59
Me sa	0	0	0.00	0	0	0	0.00	0	0.54	0.17	0.36	14	0.12	0	0.06	2	4
TOTAL			81.02	3241			38.86	1554			92.46	3698			97.60	3904	3099
(excludes litter)				3223				1538				3684				3901.6	
				17.8				16.2				14.2				2.4	

STARS VEGETATION PRODUCTION

Site	27				27				27				27				
Treatment	X				X				X				X				
Seed Mix	2				2				2				2				
Replication	1				2				3				4				
Plot	1				9				13				20				treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	28.94	37.73	33.34	1333	26.04	26.51	26.28	1051	88.93	40.94	64.94	2597	33.38	23.09	28.24	1129	1528
Ag cr	51.12	34.1	42.61	1704	95.34	23.67	59.51	2380	69.7	6.02	37.86	1514	2.89	11.99	7.44	298	1474
El ju	38.9	47.15	43.03	1721	9.39	32.88	21.14	845	10.12	76.15	43.14	1725	13.93	2.89	8.41	336	1157
Ag el	0	0	0.00	0	0	0	0.00	0	2.51	8.04	5.28	211	16.93	8.67	12.80	512	181
Forb	0	6.11	3.06	122	0	0	0.00	0	0	0	0.00	0	0.26	0	0.13	5	32
Ag in	0	2.72	1.36	54	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	14
Ag tri	0	0	0.00	0	7.31	0	3.66	146	1.69	0	0.85	34	0	0	0.00	0	45
Me sa	0.37	0	0.19	7	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	2
Unk G	0	0	0.00	0	0.26	0	0.13	5	0	0	0.00	0	0	0	0.00	0	1
De ca	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0.55	3.69	2.12	85	21
Ju ba	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	1.6	0.80	32	8
Si hy	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0.05	0.03	1	0
Ro wo	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0.84	0	0.42	17	4
TOTAL			90.24	3609			84.43	3377			87.12	3485			32.15	1286	2939
(excludes litter)																	
				3479.8				3377				3484.6				1231.8	
				129.6				0				0				37.2	

STARS VEGETATION PRODUCTION

Site	33				33				33				3				
Treatment	A				A				A				A				
Seed Mix	1				1				1				1				
Replication	1				2				3				4				
Plot	5				7				18				21				treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	12.72	29.21	20.97	839	25.33	61.68	43.51	1740	3.96	30.36	17.16	686	7.55	3.42	5.49	219	871
Ag sm	7.02	3.05	5.04	201	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	50
Ag tra	0.96	1.97	1.47	59	0	0	0.00	0	0	0	0.00	0	4.08	1.7	2.89	116	44
El ci	6.3	0	3.15	126	0	1.23	0.62	25	8.18	4.1	6.14	246	0	0	0.00	0	99
Di sp	1.39	1.49	1.44	58	18.67	6.25	12.46	498	0	60.81	30.41	1216	22.5	4.87	13.69	547	580
Forb	0	0.13	0.07	3	0	0	0.00	0	0	0	0.00	0	5.7	6.58	6.14	246	62
Me of	0.02	1.86	0.94	38	0	1.84	0.92	37	0.5	0	0.25	10	0	0	0.00	0	21
Sa ve	0	0.8	0.40	16	42.5	3.99	23.25	930	4.91	0	2.46	98	1.05	0	0.53	21	266
Po co	0	0	0.00	0	0	0.25	0.13	5	0	0	0.00	0	0	0	0.00	0	1
Si hy	0	0	0.00	0	0	0	0.00	0	2.66	5.07	3.87	155	1.2	0	0.60	24	45
TOTAL			12.50	500			37.37	1495			43.12	1725			23.84	954	1168
(excludes litter)				443.6				528				1616.4				687	
				40.2				36.8				10				245.6	
				16				929.8				98.2				21	

STARS VEGETATION PRODUCTION

Site	33				33				33				33				
Treatment	C				C				C				C				
Seed Mix	1				1				1				1				
Replication	1				2				3				4				
Plot	4				12				16				20				treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	25.17	30.45	27.81	1112	44.03	51.34	47.69	1907	22.25	26.43	24.34	974	4.85	6.04	5.45	218	1053
Di sp	7.17	8.47	7.82	313	0.55	8.5	4.53	181	20.72	9.68	15.20	608	0	0	0.00	0	275
TOTAL			7.82	313			4.53	181			15.20	608			0.00	0	275
(excludes litter)																	

STARS VEGETATION PRODUCTION

Site	33				33				33				33				
Treatment	D				D				D				D				
Seed Mix	1				1				1				1				
Replication	1				2				3				4				
Plot	2				8				17				23				treatment
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	kg/ha
Plant Species																	
Litter	171.95	122.74	147.35	5894	41.71	11.3	26.51	1060	18.02	2.1	10.06	402	9.26	16.69	12.98	519	1969
Ag sm	0	0	0.00	0	0	4.58	2.29	92	4.32	0.85	2.59	103	2.17	0	1.09	43	60
Ag tra	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	39.07	44.74	41.91	1676	419
El ci	35.78	14.81	25.30	1012	33.45	4.26	18.86	754	0	6.78	3.39	136	0	3.61	1.81	72	493
Di sp	0	0	0.00	0	0.05	2.11	1.08	43	5.27	0	2.64	105	11.12	0.33	5.73	229	94
Forb	0	0	0.00	0	0	0.66	0.33	13	0.39	0	0.20	8	0	0.5	0.25	10	8
Me of	0	0	0.00	0	12.09	17.8	14.95	598	0	0	0.00	0	2.99	1.19	2.09	84	170
Sa ve	0	0	0.00	0	0.26	0	0.13	5	69.98	56.28	63.13	2525	0.18	0	0.09	4	634
Po co	0	0	0.00	0	0.18	0	0.09	4	0	0	0.00	0	0	0	0.00	0	
Si hy	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0.31	29.59	14.95	598	
TOTAL			25.30	1012			37.72	1509			71.94	2877			67.90	2716	
(excludes litter)				1011.8				892.6				344.4				2618.8	
				0				611				7.8				93.6	
				0				5.2				2525.2				3.6	

STARS VEGETATION PRODUCTION

Site	33				33				33				33			
Treatment	I				I				I				I			
Seed Mix	1				1				1				1			
Replication	1				2				3				4			
Plot	1				10				13				22			
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha
Plant Species																
Litter	42.11	11.77	26.94	1078	16.18	28.92	22.55	902	60.84	94.51	77.68	3107	20.69	23.84	22.27	891
Ag sm	0.99	3.42	2.21	88	0.39	0	0.20	8	19.02	1.41	10.22	409	8.03	6.28	7.16	286
Ag tra	23.27	9.11	16.19	648	0	0	0.00	0	22.35	28.71	25.53	1021	0	14.65	7.33	293
El ci	23.78	90.9	57.34	2294	24.13	26.48	25.31	1012	5.36	72.94	39.15	1566	5.04	2.51	3.78	151
Di sp	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	23.31	15.91	19.61	784
Forb	0	0	0.00	0	3.58	0.13	1.86	74	5.05	0	2.53	101	0.44	0	0.22	9
Me of	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0.61	0	0.31	12
Sa ve	0	0	0.00	0	65.95	9.96	37.96	1518	5.87	0.98	3.43	137	0.72	0.6	0.66	26
Si hy	0	0	0.00	0	0	6	3.00	120	0.43	0	0.22	9	0	0.63	0.32	13
TOTAL (excludes litter)			75.74	3029			68.31	2732			81.06	3242			39.37	1575

STARS VEGETATION PRODUCTION

Site	33				33				33				33			
Treatment	T				T				T				T			
Seed Mix	1				1				1				1			
Replication	1				2				3				4			
Plot	6				9				14				19			
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha
Plant Species																
Litter	21.42	59.21	40.32	1613	57.52	81.14	69.33	2773	74.33	67.16	70.75	2830	44.81	161.9	103.36	4134
Ag sm	0	0	0.00	0	0	0.11	0.06	2	3.34	0	1.67	67	0	0	0.00	0
Ag tra	0	0	0.00	0	0	0	0.00	0	3.23	9.28	6.26	250	0.48	43.02	21.75	870
El ci	48.55	5.03	26.79	1072	60.49	41.16	50.83	2033	34.1	7.81	20.96	838	41.29	66.75	54.02	2161
Forb	1.09	2.86	1.98	79	0	0	0.00	0	2	1.34	1.67	67	3.71	0	1.86	74
Me of	0.11	0	0.06	2	3.02	0	1.51	60	0	1.72	0.86	34	0.51	0	0.26	10
Si hy	0	2.2	1.10	44	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
Mustards	6.99	6.85	6.92	277	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
Ce ma	0	30.64	15.32	613	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
Ag cr	0	0	0.00	0	0	0	0.00	0	0	1.82	0.91	36	0	0	0.00	0
TOTAL (excludes litter)			52.16	2086			52.39	2096			32.32	1293			77.88	3115

STARS VEGETATION PRODUCTION

Site	33				33				33				33			
Treatment	A				A				A				A			
Seed Mix	2				2				2				2			
Replication	1				2				3				4			
Plot	5				7				18				21			
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha
Plant Species																
Litter	5.81	3.61	4.71	188	11.35	16.59	13.97	559	21.96	39.32	30.64	1226	6.99	12.4	9.70	388
El an	12.85	1.57	7.21	288	0	0	0.00	0	42.91	5.42	24.17	967	5.51	6.38	5.95	238
Ag ri	4.99	0	2.50	100	0	0	0.00	0	0	10.38	5.19	208	8.28	0	4.14	166
Di sp	0	1.02	0.51	20	12.58	10.73	11.66	466	4.55	17.97	11.26	450	0	5.61	2.81	112
Forb	0	0.01	0.01	0	2.49	3.75	3.12	125	0.22	0	0.11	4	1.07	6.85	3.96	158
Sa ve	0	0	0.00	0	0.55	21.23	10.89	436	1.22	5.82	3.52	141	3.75	1.02	2.39	95
El ci	0	0	0.00	0	11.53	0	5.77	231	0	0	0.00	0	0	0	0.00	0
Ag tra	0	0	0.00	0	0	17.88	8.94	358	0	0	0.00	0	0	0	0.00	0
Ag tri	0	0	0.00	0	0	0	0.00	0	6.22	0	3.11	124	0	0	0.00	0
Si hy	0	0	0.00	0	0	0	0.00	0	0	4.79	2.40	96	0.66	4.11	2.39	95
De ca	0	0	0.00	0	0	0	0.00	0	0	0.27	0.14	5	0	0	0.00	0
Po co	0	0	0.00	0	0	0	0.00	0	0	0.61	0.31	12	0	0	0.00	0
TOTAL (excludes litter)			10.22	409			40.37	1615			50.19	2008			21.62	865

STARS VEGETATION PRODUCTION

Site	33				33				33				33			
Treatment	C				C				C				C			
Seed Mix	2				2				2				2			
Replication	1				2				3				4			
Plot	4				12				16				20			
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha
Plant Species																
Litter	13	12.94	12.97	519	19.36	32.47	25.92	1037	36.9	6.32	21.61	864	14.58	6.61	10.60	424
Di sp	0	27.36	13.68	547	0.07	35.46	17.77	711	4.66	5.51	5.09	203	0	0	0.00	0
TOTAL			13.68	547			17.77	711			5.09	203			0.00	0
(excludes litter)																

STARS VEGETATION PRODUCTION

Site	33				33				33				33			
Treatment	D				D				D				D			
Seed Mix	2				2				2				2			
Replication	1				2				3				4			
Plot	2				8				17				23			
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha
Plant Species																
Litter	151.34	240.42	195.88	7835	107.9	36.77	72.34	2893	18.35	6.04	12.20	488	29.83	74.93	52.38	2095
El an	28.67	0	14.34	573	87.31	60.47	73.89	2956	26.83	1.35	14.09	564	128.4	263.51	195.96	7838
Ag ri	2.85	1.51	2.18	87	0	0	0.00	0	2.1	0	1.05	42	1.03	5.79	3.41	136
Di sp	0	0	0.00	0	0	5.01	2.51	100	0	2.8	1.40	56	12.08	0.33	6.21	248
Forb	0	0	0.00	0	0	0.26	0.13	5	0	0	0.00	0	0	0.54	0.27	11
Sa ve	0	0	0.00	0	0	0	0.00	0	32.42	18.59	25.51	1020	0	20.78	10.39	416
El ci	0	3.49	1.75	70	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
Ag tri	2.44	2.3	2.37	95	0	3.23	1.62	65	5.03	12.67	8.85	354	12.98	0	6.49	260
Ag sp	0	0	0.00	0	0.17	0	0.09	3	0	0	0.00	0	0	0	0.00	0
TOTAL (excludes litter)			20.63	825			78.23	3129			50.90	2036			222.72	8909

STARS VEGETATION PRODUCTION

Site	33				33				33				33			
Treatment	I				I				I				I			
Seed Mix	2				2				2				2			
Replication	1				2				3				4			
Plot	1				10				13				22			
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha
Plant Species																
Litter	47.28	53.56	50.42	2017	12.23	20.17	16.20	648	92.92	112.61	102.77	4111	22.97	14.87	18.92	757
El an	22.23	9.84	16.04	641	25.64	25.14	25.39	1016	26.14	38.87	32.51	1300	4.33	18.51	11.42	457
Ag ri	9.01	19.6	14.31	572	0.37	0	0.19	7	30.21	25.77	27.99	1120	11.06	2.06	6.56	262
Di sp	0	0	0.00	0	0	0	0.00	0	12.16	0	6.08	243	0	0.37	0.19	7
Forb	0	0	0.00	0	0.22	1.19	0.71	28	0	0	0.00	0	0.51	2.45	1.48	59
Sa ve	0	0	0.00	0	6.39	15.16	10.78	431	0	0	0.00	0	20.52	27.96	24.24	970
Ag tri	0.86	4.73	2.80	112	0	0	0.00	0	8.19	0	4.10	164	0	0	0.00	0
Si hy	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	7.98	3.99	160
TOTAL (excludes litter)			33.14	1325			37.06	1482			70.67	2827			47.88	1915

STARS VEGETATION PRODUCTION

Site	33				33				33				33			
Treatment	T				T				T				T			
Seed Mix	2				2				2				2			
Replication	1				2				3				4			
Plot	6				9				14				19			
Frame	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean	1	2	mean	mean
Units	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha	g/frame	g/frame	g/frame	kg/ha
Plant Species																
Litter	59.55	102.31	80.93	3237	113.62	95.38	104.50	4180	56.37	44.7	50.54	2021	23.01	59.11	41.06	1642
El an	32.39	23.84	28.12	1125	73.58	58.78	66.18	2647	16.87	35.7	26.29	1051	12.1	23.96	18.03	721
Ag ri	6.19	0	3.10	124	0	0	0.00	0	4.04	0.97	2.51	100	12.36	14.18	13.27	531
Di sp	0	0	0.00	0	11.1	0	5.55	222	0	0	0.00	0	0	0	0.00	0
Forb	0	0	0.00	0	0	0	0.00	0	6.31	0	3.16	126	2.93	0.7	1.82	73
Ag tri	3.09	0	1.55	62	11.69	0.33	6.01	240	0	23.38	11.69	468	25.28	29.15	27.22	1089
Ag sp	0	2.88	1.44	58	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
Me of	0.28	0.17	0.23	9	0	0	0.00	0	0	0	0.00	0	0.32	0	0.16	6
Ce ma	0	2.16	1.08	43	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
Mustards	3.03	1.1	2.07	83	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0
Ag cr	0	0	0.00	0	0	0	0.00	0	5.49	0	2.75	110	0	0	0.00	0
De ca	0	0	0.00	0	0	0	0.00	0	0	0	0.00	0	0	0.9	0.45	18
TOTAL			37.57	1503			77.74	3110			46.38	1855			60.94	2438
(excludes litter)																

APPENDIX D6

ROOTING CHARACTERISTICS

STARS PHASE III - VEGETATION MONITORING

ROOTING CHARACTERISTICS

Date/Time 7/26/91 / 14:10 Samplers Munshower

Site No./Name 7 / Rocker

Replication 4

Seed Mixture 2

Plot Number and Treatment Code 20 / D

Maximum Rooting Depth _____(cm)

Questions:
Are the roots following any particular route?
fractures
amended areas

Is there a build-up of roots at the interface between the amended and unamended zones, or are the roots freely penetrating this zone?

Comments:
Better vegetation, less rocky soil also closer to creek, better soil texture more clay less sand
Root penetration to 25 cm
Elymus g. fairly shallow rooted, strongly rhizomatc

Treatments:T=topsoil,A=Agricultural,D=Deep Plow,I=LSPI,C=Control,X=Extra
Cover Classes: 0-5%=1, 6-25%=2, 26-50%=3, 51-75%=4, 76-95%=5, 96-100%=6

STARS PHASE III - VEGETATION MONITORING

****ROOTING CHARACTERISTICS****

Date/Time 7/26/91 / 1400 Samplers Munshower

Site No./Name 7 / Rocker

Replication 3

Seed Mixture 1

Plot Number and Treatment Code 14 / D

Maximum Rooting Depth _____**(cm)**

Questions:
Are the roots following any particular route?
fractures
amended areas

Is there a build-up of roots at the interface between the amended and unamended zones, or are the roots freely penetrating this zone?

Comments:
Root penetrate to 25 cm
Soil texture sandy, dry

Treatments:T=topsoil,A=Agricultural,D=Deep Plow,I=LSPI,C=Control,X=Extra
Cover Classes: 0-5%=1, 6-25%=2, 26-50%=3, 51-75%=4, 76-95%=5, 96-100%=6

STARS PHASE III - VEGETATION MONITORING

****ROOTING CHARACTERISTICS****

Date/Time 7/24/91 / 13:56 Samplers Murshower / Jennings

Site No./Name 21 / Ramsay

Replication 4

Seed Mixture 2

Plot Number and Treatment Code 21 / D

Maximum Rooting Depth _____**(cm)**

Questions:
Are the roots following any particular route? NO
fractures
amended areas

Is there a build-up of roots at the interface between the amended and unamended zones, or are the roots freely penetrating this zone?

Comments:
good vegetation stand
roots penetrating to 15"

Treatments:T=topsoil,A=Agricultural,D=Deep Plow,I=LSPI,C=Control,X=Extra
Cover Classes: 0-5%=1, 6-25%=2, 26-50%=3, 51-75%=4, 76-95%=5, 96-100%=6

STARS PHASE III - VEGETATION MONITORING

****ROOTING CHARACTERISTICS****

Date/Time 7/24/91 / 14:00 Samplers Munshower / Jennings

Site No./Name 21 / Ramsay

Replication 4

Seed Mixture 1

Plot Number and Treatment Code 23 / A

Maximum Rooting Depth _____(cm)

Questions:
Are the roots following any particular route?
fractures
amended areas

Is there a build-up of roots at the interface between the amended and unamended zones, or are the roots freely penetrating this zone?

Comments:
vegetation stand excellent-
roots stopping at lime layer at 7"

Treatments:T=topsoil,A=Agricultural,D=Deep Plow,I=LSPI,C=Control,X=Extra
Cover Classes: 0-5%=1, 6-25%=2, 26-50%=3, 51-75%=4, 76-95%=5, 96-100%=6

STARS PHASE III - VEGETATION MONITORING

****ROOTING CHARACTERISTICS****

Date/Time 7/24/91 / 13:50 Samplers Munshower / _____

Site No./Name 21 / Ramsay

Replication 2

Seed Mixture 1

Plot Number and Treatment Code 11 / I

Maximum Rooting Depth _____ **(cm)**

Questions:
Are the roots following any particular route?
fractures
amended areas

Is there a build-up of roots at the interface between the amended and unamended zones, or are the roots freely penetrating this zone?

Comments:
Root penetration to 5"
Also poorly vegetation
some plot some mix - diff area, better vegetation
root penetration to 8"

Treatments:T=topsoil,A=Agricultural,D=Deep Plow,I=LSPI,C=Control,X=Extra
Cover Classes: 0-5%=1, 6-25%=2, 26-50%=3, 51-75%=4, 76-95%=5, 96-100%=6

STARS PHASE III - VEGETATION MONITORING

****ROOTING CHARACTERISTICS****

Date/Time 7/24/91 / 14:10 Samplers Munshower / Jennings

Site No./Name 21 / Ramsay

Replication 1

Seed Mixture 2

Plot Number and Treatment Code 4 / I

Maximum Rooting Depth _____**(cm)**

Questions:
Are the roots following any particular route?
fractures
amended areas

Is there a build-up of roots at the interface between the amended and unamended zones, or are the roots freely penetrating this zone?

Comments:
Good stand of vegetation
Heavier clay soil,
Root penetration to 7"

Treatments:T=topsoil,A=Agricultural,D=Deep Plow,I=LSPI,C=Control,X=Extra
Cover Classes: 0-5%=1, 6-25%=2, 26-50%=3, 51-75%=4, 76-95%=5, 96-100%=6

STARS PHASE III - VEGETATION MONITORING

****ROOTING CHARACTERISTICS****

Date/Time 7/24/91 / 14:06 Samplers munshower / Jennings

Site No./Name 21 / Ramsay

Replication 4

Seed Mixture 1

Plot Number and Treatment Code 24 / I

Maximum Rooting Depth _____(cm)

Questions:
Are the roots following any particular route?
fractures
amended areas

Is there a build-up of roots at the interface between the amended and unamended zones, or are the roots freely penetrating this zone?

Comments:
vegetation good

this site is the best injection plot

- lime is more evident at this site; more noticeable signs of lime - less mixing of lime, clumps of lime

Roots penetrated to 11"

Treatments:T=topsoil,A=Agricultural,D=Deep Plow,I=LSPI,C=Control,X=Extra
Cover Classes: 0-5%=1, 6-25%=2, 26-50%=3, 51-75%=4, 76-95%=5, 96-100%=6

STARS PHASE III - VEGETATION MONITORING

****ROOTING CHARACTERISTICS****

Date/Time 7/25/91 / 12:21 Samplers Frank / Sta

Site No./Name 27 / Fairmont

Replication 4

Seed Mixture 2

Plot Number and Treatment Code 22 / D

Maximum Rooting Depth _____ **(cm)**

Questions:
Are the roots following any particular route?
fractures
amended areas

Is there a build-up of roots at the interface between the amended and unamended zones, NO or are the roots freely penetrating this zone? yes

Comments:
Soil very dry or plots very dry - water appears to run off plots and down into lower areas.

Roots penetrate below 30 cm. Soil very dry and powdery. Surprising plants can survive in this type of conditio

Treatments: T=topsoil, A=Agricultural, D=Deep Plow, I=LSPI, C=Control, X=Extra
Cover Classes: 0-5%=1, 6-25%=2, 26-50%=3, 51-75%=4, 76-95%=5, 96-100%=6

STARS PHASE III - VEGETATION MONITORING

****ROOTING CHARACTERISTICS****

Date/Time 7/25/91 / 12:35 Samplers Frank / Jennings

Site No./Name 27 / Fairmont

Replication 1

Seed Mixture 1

Plot Number and Treatment Code 1 / X

Maximum Rooting Depth _____(cm)

Questions:
Are the roots following any particular route?
fractures
amended areas

Is there a build-up of roots at the interface between the amended and unamended zones, or are the roots freely penetrating this zone?

Comments:
Soil extremely dry, hard soil
Root penetration to at least 8", roots still going to be on 10".

Treatments:T=topsoil,A=Agricultural,D=Deep Plow,I=LSPI,C=Control,X=Extra
Cover Classes: 0-5%=1, 6-25%=2, 26-50%=3, 51-75%=4, 76-95%=5, 96-100%=6

STARS PHASE III - VEGETATION MONITORING

****ROOTING CHARACTERISTICS****

Date/Time 7/25/91 / 12:30 Samplers Frank / Jennings

Site No./Name 27 / Fairmont

Replication 2

Seed Mixture 1

Plot Number and Treatment Code 9 / X

Maximum Rooting Depth _____ **(cm)**

Questions:
Are the roots following any particular route?
fractures
amended areas

Is there a build-up of roots at the interface between the amended and unamended zones, or are the roots freely penetrating this zone?

Comments:
Roots penetrate to 5-6" - sand layer at 5-6"
This plot much wetter, sandy dark soil
Roots penetrate to sand layer and stop
Plot located in a slightly lower area

Treatments:T=topsoil,A=Agricultural,D=Deep Plow,I=LSPI,C=Control,X=Extra
Cover Classes: 0-5%=1, 6-25%=2, 26-50%=3, 51-75%=4, 76-95%=5, 96-100%=6

STARS PHASE III - VEGETATION MONITORING

****ROOTING CHARACTERISTICS****

Date/Time 7/25 / 12:15 Samplers Munshower / Jennings

Site No./Name 27 / Fairmont

Replication 3

Seed Mixture 1

Plot Number and Treatment Code 17 / A

Maximum Rooting Depth _____(cm)

Questions:
Are the roots following any particular route?
fractures
amended areas

Is there a build-up of roots at the interface between the amended and unamended zones, or are the roots freely penetrating this zone?

Comments: >7"
roots stop at interface or zone of incorporation
interface - dry soil - then soil noticeable moister

Treatments:T=topsoil,A=Agricultural,D=Deep Plow,I=LSPI,C=Control,X=Extra
Cover Classes: 0-5%=1, 6-25%=2, 26-50%=3, 51-75%=4, 76-95%=5, 96-100%=6

STARS PHASE III - VEGETATION MONITORING

****ROOTING CHARACTERISTICS****

Date/Time 7/23/91 / 12:08 Samplers Munshower et al

Site No./Name 33 / Opportunity

Replication 4

Seed Mixture 2

Plot Number and Treatment Code 19 / I

Maximum Rooting Depth _____ **(cm)**

Questions:
Are the roots following any particular route?
fractures
amended areas

Is there a build-up of roots at the interface between the amended and unamended zones, or are the roots freely penetrating this zone?

Comments:
Roots into underlying limed soil, root limited to limed a
saltgrass rhizomous ~~saltgrass~~ in reduced zone below amended materials

Treatments:T=topsoil,A=Agricultural,D=Deep Plow,I=LSPI,C=Control,X=Extra
Cover Classes: 0-5%=1, 6-25%=2, 26-50%=3, 51-75%=4, 76-95%=5, 96-100%=6

STARS PHASE III - VEGETATION MONITORING

****ROOTING CHARACTERISTICS****

Date/Time 7/23/91 / noon Samplers Munshower et al

Site No./Name 33 / Opportunity

Replication 2

Seed Mixture 2

Plot Number and Treatment Code 8 / D

Maximum Rooting Depth _____**(cm)**

Questions:
Are the roots following any particular route?
fractures
amended areas

Is there a build-up of roots at the interface between the amended and unamended zones, or are the roots freely penetrating this zone?

Comments:
15" roots still going

Treatments:T=topsoil,A=Agricultural,D=Deep Plow,I=LSPI,C=Control,X=Extra
Cover Classes: 0-5%=1, 6-25%=2, 26-50%=3, 51-75%=4, 76-95%=5, 96-100%=6

STARS PHASE III - VEGETATION MONITORING

****ROOTING CHARACTERISTICS****

Date/Time 7/23/91 / 12:15 Samplers Munshower et al

Site No./Name 33 / Opportunity

Replication 4

Seed Mixture 2

Plot Number and Treatment Code 23 / D

Maximum Rooting Depth _____ **(cm)**

Questions:
Are the roots following any particular route?
fractures
amended areas

Is there a build-up of roots at the interface between the amended and unamended zones, or are the roots freely penetrating this zone?

Comments:
root penetration past 15"
heavy root mass top 10"

Treatments:T=topsoil,A=Agricultural,D=Deep Plow,I=LSPI,C=Control,X=Extra
Cover Classes: 0-5%=1, 6-25%=2, 26-50%=3, 51-75%=4, 76-95%=5, 96-100%=6

STARS PHASE III - VEGETATION MONITORING

****ROOTING CHARACTERISTICS****

Date/Time 7/23/91 / 12:04 Samplers Munshower et al

Site No./Name 33 / Opportunity

Replication 3

Seed Mixture 1

Plot Number and Treatment Code 13 / I

Maximum Rooting Depth _____**(cm)**

Questions:
Are the roots following any particular route?
fractures
amended areas

Is there a build-up of roots at the interface between the amended and unamended zones, or are the roots freely penetrating this zone?

Comments:
Salt grass rhizomes ~~down to~~ below 14"
root penetration appears to be in top 6-8"

Treatments:T=topsoil,A=Agricultural,D=Deep Plow,I=LSPI,C=Control,X=Extra
Cover Classes: 0-5%=1, 6-25%=2, 26-50%=3, 51-75%=4, 76-95%=5, 96-100%=6

STARS PHASE III - VEGETATION MONITORING

****ROOTING CHARACTERISTICS****

Date/Time 7/23 / 11:55 Samplers Munshower, et al.

Site No./Name 331 Opportunity

Replication 1

Seed Mixture 1

Plot Number and Treatment Code 5 / A

Maximum Rooting Depth _____**(cm)**

Questions:
Are the roots following any particular route?
fractures
amended areas

Is there a build-up of roots at the interface between the amended and unamended zones, or are the roots freely penetrating this zone?

Comments:
1 Aristema sp still alive - robust

Root penetration to 8" at least 1 root horizontal at this level

Treatments:T=topsoil,A=Agricultural,D=Deep Plow,I=LSPI,C=Control,X=Extra
Cover Classes: 0-5%=1, 6-25%=2, 26-50%=3, 51-75%=4, 76-95%=5, 96-100%=6

APPENDIX D7

ELEMENTAL VALUES IN VEGETATION

Table 1. Elemental levels (mg/kg) in vegetation collected in July 1991 from the STARS field plots. Silver Bow Creek RI/FS.

Station Location	Species	Sample Code	SMO Number	Al	As	Cd	Cu	Pb	Mn	Zn	Comments
07A01	Agda	N	V-001	132.0	2.00	0.25	14.9	5.10	85.1	41.0	
07A10	Agda	N	V-002	84.6	5.80	0.28	15.4	27.00	123.0	80.0	
07A16	Agda	N	V-003	79.0	0.08 JSG	0.32	12.8	0.63	62.9	60.3	
07A23	Agda	N	V-004	65.1	4.50	0.21	16.5	16.50	41.2	97.3	
07C02	Agda	N	V-005	119.0	2.20	0.41	26.6	3.90	58.4	72.0	
07D03	Agda	N	V-006	129.0	2.10	0.18	12.1	9.50	43.1	38.9	
07D03	Agda	R	V-007	128.0	2.20	0.19	11.9	5.20	43.4	39.9	Replicate of V-006
07D09	Agda	N	V-008	83.1	2.10	0.28	11.4	8.20	35.7	42.4	
07D14	Agda	N	V-009	92.5	2.00	0.48	25.7	8.90	53.5	95.7	
07D20	Agda	N	V-010	39.8	2.00	0.23	13.5	8.90	80.9	48.6	
07I05	Agda	N	V-011	187.0	2.00	0.28	15.7	8.20	95.5	52.0	
07I18	Agda	N	V-012	161.0	3.00	0.21	20.1	6.00	81.3	38.1	
07I22	Agda	N	V-013	147.0	2.60	0.20	29.2	5.00	52.5	51.3	
07I22		BFS	V-014	142.0	4.10	0.01	5.7	17.10	49.5	12.2	NIST Apple Leaves #1515
07T06	Agda	N	V-015	49.8	2.60	0.14	5.7	4.40	53.3	33.8	
07T12	Agda	N	V-016	40.6	10.00	0.11	5.3	64.00	42.7	22.5	
07T13	Agda	N	V-017	19.1	1.70	0.09	6.6	10.50	74.2	39.3	
07T19	Agda	N	V-018	24.2	1.40	0.12	8.0	4.80	67.5	46.9	
07A01	Elan	N	V-019	37.9	4.90	0.40	9.5	39.00	91.9	55.8	
07A16	Elan	N	V-020	87.9	2.80	0.69	15.4	11.30	64.5	70.5	
07A23	Elan	N	V-021	88.3	19.40	0.13	19.5	5.50	54.3	72.2	
07D03	Elan	N	V-022	88.9	2.20	0.23	10.1	3.20	36.4	40.8	
07D09	Elan	N	V-023	48.1	1.30	0.18	7.3	1.50	39.1	37.6	
07D09	Elan	R	V-024	47.8	1.20	0.19	7.3	1.60	38.7	38.0	Replicate of V-023
07D14	Elan	N	V-025	67.5	7.80	0.79	18.9	6.60	64.5	106.0	
07D20	Elan	N	V-026	47.1	1.70	0.23	12.3	2.00	72.0	44.4	
07A10	Elan	N	V-027	51.9	1.30	0.32	9.2	3.40	89.5	56.6	
07I05	Elan	N	V-028	49.9	1.50	0.29	6.6	1.50	84.9	55.9	
07I18	Elan	N	V-029	252.0	10.90	0.31	18.8	11.10	68.1	42.2	
07I22	Elan	N	V-030	100.0	10.30	0.18	19.7	7.60	29.5	35.0	
07T06	Elan	N	V-031	37.1	2.20	0.09	5.5	0.95	52.7	30.6	
07T06		BFS	V-032	181.0	0.05 U	0.01	5.7	0.35	51.1	12.7	NIST Apple Leaves #1515
07T12	Elan	N	V-033	44.3	1.80	0.11	5.7	1.20	49.3	29.8	
07T13	Elan	N	V-034	27.7	1.50	0.16	6.9	1.50	111.0	66.7	

Table 1. Continued.

Station Location	Species	Sample Code	SMO Number	Al	As	Cd	Cu	Pb	Mn	Zn	Comments
21A05	Agel	N	V-035	177.0	11.20	1.50	154.0	16.00	757.0	734.0	
21A09	Agel	N	V-036	592.0	50.30	3.90	569.0	61.40	1390.0	1120.0	
21A15	Agel	N	V-037	346.0	28.90	1.60	221.0	30.70	839.0	696.0	
21A23	Agel	N	V-038	148.0	13.90	1.10	167.0	13.70	680.0	450.0	
21I04	Agel	N	V-039	234.0	12.80	1.50	177.0	18.30	516.0	421.0	
21I11	Agel	N	V-040	401.0	30.10	1.30	246.0	30.50	459.0	339.0	
21I14	Agel	N	V-041	409.0	30.60	2.40	337.0	37.20	750.0	634.0	
21I24	Agel	N	V-042	162.0	13.90	0.82	102.0	14.10	324.0	179.0	
21D02	Agel	N	V-043	232.0	10.80	1.40	180.0	29.40	504.0	432.0	
21D02	Agel	R	V-044	235.0	11.10	1.40	184.0	30.30	501.0	433.0	Replicate of V-043
21D07	Agel	N	V-045	260.0	15.20	1.20	160.0	29.90	422.0	336.0	
21D17	Agel	N	V-046	682.0	57.50	2.30	389.0	130.00	1040.0	796.0	
21D21	Agel	N	V-047	365.0	49.10	1.70	257.0	53.00	723.0	601.0	
21D21	Agel	BFS	V-048	166.0	0.05 UJSG	0.03	5.9	0.54	47.1	12.0	NIST Apple Leaves #1515
21T01	Agel	N	V-049	64.8	3.20	0.63	62.5	5.60	326.0	302.0	
21T12	Agel	N	V-050	119.0	6.40	0.73	78.5	7.90	380.0	263.0	
21T13	Agel	N	V-051	65.2	4.50	0.54	59.7	4.70	285.0	213.0	
21T19	Agel	N	V-052	47.0	3.10	0.53	54.9	3.40	288.0	219.0	
21A05	Agin	N	V-053	302.0	15.20	2.20	242.0	22.80	988.0	887.0	
21A09	Agin	N	V-054	481.0	34.70	2.40	301.0	45.20	885.0	580.0	
21A15	Agin	N	V-055	396.0	30.10	2.30	301.0	39.10	941.0	714.0	
21A23	Agin	N	V-056	66.3	6.90	0.59	69.4	6.20	346.0	174.0	
21D02	Agin	N	V-057	115.0	7.40	1.30	99.6	17.20	590.0	421.0	
21D07	Agin	N	V-058	429.0	33.00	1.80	240.0	53.00	613.0	544.0	
21D17	Agin	N	V-059	273.0	25.80	1.70	233.0	48.10	551.0	498.0	
21D21	Agin	N	V-060	247.0	22.80	1.60	213.0	34.50	734.0	499.0	
21I04	Agin	N	V-061	276.0	17.90	2.60	291.0	26.70	942.0	842.0	
21I11	Agin	N	V-062	441.0	46.10	1.80	247.0	46.60	570.0	528.0	
21I14	Agin	N	V-063	323.0	30.90	3.40	454.0	34.40	884.0	777.0	
21I24	Agin	N	V-064	106.0	11.30	0.59	81.3	10.90	313.0	152.0	
21I24	Agin	R	V-065	112.0	11.10	0.62	83.9	10.50	313.0	155.0	Replicate of V-064
21T01	Agin	N	V-066	47.1	1.50	0.62	43.2	2.90	271.0	226.0	
21T12	Agin	N	V-067	43.0	3.00	0.30	26.6	2.50	180.0	118.0	
21T13	Agin	N	V-068	45.4	3.30	0.54	57.2	3.80	241.0	162.0	
21T19	Agin	N	V-069	57.9	4.70	0.82	111.0	4.60	280.0	272.0	
21T19		BFS	V-070	119.0	0.05 UJG	0.02	5.4	0.49	49.4	11.5	NIST Apple Leaves #1515

Table 1. Continued.

Station Location	Species	Sample Code	SMO Number	Al	As	Cd	Cu	Pb	Mn	Zn	Comments
27A04	Agcr	N	V-071	55.4	1.40	0.29	11.4	6.60	41.7	90.8	
27A07	Agcr	N	V-072	37.1	1.50	0.35	10.4	4.10	67.3	93.8	
27A17	Agcr	N	V-073	73.5	3.20	0.78	15.6	14.60	50.2	166.0	
27A19	Agcr	N	V-074	230.0	7.40	0.89	37.0	31.80	141.0	124.0	
27D05	Agcr	N	V-075	39.9	1.20	0.53	10.4	4.70	59.1	104.0	
27D11	Agcr	N	V-076	66.4	2.90	0.62	12.6	7.70	79.5	137.0	
27D16	Agcr	N	V-077	39.2	1.20	0.39	7.8	5.80	43.2	101.0	
27D22	Agcr	N	V-078	53.0	1.40	0.64	10.4	6.70	49.7	145.0	
27X01	Agcr	N	V-079	59.5	2.60	0.22	8.6	4.30	39.1	57.4	
27X09	Agcr	N	V-080	65.1	2.60	0.20	13.7	10.50	42.6	55.3	
27X13	Agcr	N	V-081	41.9	2.00	0.31	10.2	5.00	61.8	94.8	
27X20	Agcr	N	V-082	143.0	5.80	0.66	47.4	28.70	158.0	237.0	
27X20		BFS	V-083	103.0	0.05 UJSG	0.01	5.7	0.41	50.9	12.3	NIST Apple Leaves #1515
27A04	Agde	N	V-084	51.3	2.40	0.45	12.9	8.40	73.1	120.0	
27A07	Agde	N	V-085	35.0	1.90	0.34	7.2	3.10	38.6	95.6	
27A17	Agde	N	V-086	58.0	2.00	0.57	12.4	8.80	62.6	136.0	
27A19	Agde	N	V-087	46.1	2.20	0.42	10.0	4.90	63.2	154.0	
27D05	Agde	N	V-088	61.4	2.10	0.59	12.7	7.40	54.5	88.6	
27D11	Agde	N	V-089	62.0	2.10	0.64	13.3	8.40	69.0	168.0	
27D16	Agde	N	V-090	51.2	2.00	0.55	10.7	8.20	43.6	149.0	
27D22	Agde	N	V-091	70.4	2.00	0.32	11.2	7.80	42.0	90.6	
27X01	Agde	N	V-092	79.5	3.10	0.24	11.7	5.80	33.6	56.3	
27X01	Agde	R	V-093	82.2	2.90	0.23	11.6	5.40	32.9	58.0	Replicate of V-092
27X09	Agde	N	V-094	98.8	4.50	0.52	25.4	18.80	78.9	165.0	
27X13	Agde	N	V-095	36.4	2.60	0.63	9.2	4.10	73.0	165.0	
27X20	Agde	N	V-096	191.0	9.50	1.00	44.0	58.90	141.0	249.0	
27A04	Elju	N	V-097	45.7	1.80	0.31	12.1	9.80	56.7	42.7	
27A07	Elju	N	V-098	31.3	2.70	0.28	8.8	4.60	37.5	70.2	
27A17	Elju	N	V-099	160.0	4.90	3.10	33.6	36.30	146.0	342.0	
27A19	Elju	N	V-100	92.8	3.00	0.69	21.9	11.30	120.0	160.0	
27A19	Elju	R	V-101	86.7	3.00	0.73	22.3	11.00	115.0	164.0	Replicate of V-100
27D05	Elju	N	V-102	18.0	1.80	0.80	9.6	3.40	65.6	74.9	
27D16	Elju	N	V-103	57.9	3.20	0.94	11.9	8.70	85.6	129.0	
27D22	Elju	N	V-104	51.2	2.80	0.78	13.6	9.40	57.5	142.0	
27D22	Elju	BFS	V-105	63.8	0.05 UJSG	0.01	5.0	0.37	41.9	9.5	NIST Apple Leaves #1515
27X01	Elju	N	V-106	49.3	2.70	0.41	11.1	5.10	40.4	46.6	
27X09	Elju	N	V-107	94.1	3.40	0.62	24.5	14.30	65.5	102.0	
27X13	Elju	N	V-108	52.1	2.90	0.50	13.2	6.70	58.2	115.0	
27X20	Elju	N	V-109	72.6	5.90	0.86	34.6	19.70	139.0	220.0	

Table 1. Continued.

Station Location	Species	Sample Code	SMO Number	Al	As	Cd	Cu	Pb	Mn	Zn	Comments
33A05	Agri	N	V-110	97.6	4.00	0.77	32.4	5.70	210.0	66.4	
33A18	Agri	N	V-111	94.0	2.70	0.41	33.5	3.20	200.0	96.7	
33A21	Agri	N	V-112	94.1	3.20	0.45	39.6	4.60	240.0	88.4	
33D02	Agri	N	V-113	32.2	2.00	0.38	13.1	1.00	83.7	69.3	
33D17	Agri	N	V-114	131.0	2.50	0.92	36.0	5.90	182.0	124.0	
33D23	Agri	N	V-115	128.0	4.70	0.73	44.0	6.00	157.0	117.0	
33I01	Agri	N	V-116	102.0	2.40	0.24	23.1	2.90	137.0	51.6	
33I10	Agri	N	V-117	312.0	7.80	0.36	77.3	14.30	97.6	78.4	
33I13	Agri	N	V-118	184.0	2.90	0.42	64.0	5.20	145.0	90.8	
33I13	Agri	R	V-119	172.0	2.80	0.41	62.6	5.00	139.0	84.4	Replicate of V-118
33I22	Agri	N	V-120	110.0	2.90	0.38	36.7	4.10	179.0	75.8	
33T06	Agri	N	V-121	47.1	1.60	0.12 JBP	12.3	0.99	90.8	35.2	
33T14	Agri	N	V-122	95.1	2.10	0.13 JBP	12.7	1.70	85.3	46.9	
33T19	Agri	N	V-123	69.6	1.60	0.13 JBP	17.9	1.40	109.0	44.5	
33A05	Elan	N	V-124	186.0	3.80	1.60	54.2	7.60	339.0	313.0	
33A18	Elan	N	V-125	182.0	3.20	0.59	55.9	5.90	245.0	218.0	
33A21	Elan	N	V-126	90.4	2.70	0.75	30.3	3.10	225.0	178.0	
33A21		BFS	V-127	150.0	0.05 UJSG	0.01 JBP	5.3	0.44	50.0	12.0	NIST Apple Leaves #1515
33D02	Elan	N	V-128	37.9	1.50	1.20	10.0	1.20	73.7	172.0	
33D08	Elan	N	V-129	111.0	2.10	0.50	25.5	2.80	61.6	154.0	
33D17	Elan	N	V-130	134.0	2.60	0.72	32.6	4.10	145.0	186.0	
33D23	Elan	N	V-131	233.0	2.90	0.63	34.0	5.70	148.0	195.0	
33I01	Elan	N	V-132	48.2	1.60	0.22	11.7	1.90	101.0	53.5	
33I10	Elan	N	V-133	366.0	6.50	0.60	76.7	11.20	179.0	179.0	
33I13	Elan	N	V-134	187.0	3.30	0.40	48.6	3.70	119.0	95.5	
33I22	Elan	N	V-135	181.0	3.30	0.75	43.4	4.30	264.0	182.0	
33T06	Elan	N	V-136	76.7	1.90	0.36	16.6	1.30	165.0	110.0	
33T06	Elan	R	V-137	66.3	1.60	0.33	14.1	1.10	146.0	93.1	Replicate of V-136
33T09	Elan	N	V-138	104.0	1.60	0.25	16.8	1.80	173.0	86.6	
33T14	Elan	N	V-139	74.4	1.90	0.40	14.6	1.10	112.0	93.9	
33T19	Elan	N	V-140	50.2	1.10	0.25	12.9	0.86	82.6	70.5	
33A05	Elci	N	V-141	45.2 JD	2.00 JS	0.34	17.5	1.80	77.6	85.5	
33A07	Elci	N	V-142	39.4 JD	1.70 JS	0.75	18.3	1.50	121.0	134.0	
33A18	Elci	N	V-143	89.1 JD	3.50 JS	0.27	29.7	2.70	185.0	117.0	
33A18		BFS	V-144	80.5 JD	0.05 UJS	0.01	4.9	0.34	43.6	9.8	
33D02	Elci	N	V-145	61.3 JD	1.30 JS	0.82	17.5	1.10	120.0	116.0	
33D08	Elci	N	V-146	55.9 JD	1.70 JS	0.30	13.5	1.30	61.4	99.5	
33D17	Elci	N	V-147	96.3 JD	3.60 JSM	1.10	38.6	3.50	144.0	180.0	
33D23	Elci	N	V-148	50.0 JD	1.30 JS	0.20	17.2	1.90	120.0	50.6	
33I01	Elci	N	V-149	40.9 JD	0.69 JS	0.19	13.4	0.93	117.0	57.5	
33I10	Elci	N	V-150	186.0 JD	2.90 JS	0.47	46.8	4.90	183.0	150.0	
33I13	Elci	N	V-151	69.8 JD	1.40 JS	0.38	21.2	1.40	137.0	73.3	
33I22	Elci	N	V-152	73.3 JD	1.70 JS	0.49	30.7	2.30	140.0	112.0	
33T06	Elci	N	V-153	63.4 JD	1.00 JS	0.23	19.5	1.30	105.0	74.6	
33T09	Elci	N	V-154	87.1 JD	2.10 JS	0.12	12.6	1.30	97.7	40.6	
33T14	Elci	N	V-155	127.0 JD	4.00 JS	0.22	18.6	1.50	94.6	64.2	
33T19	Elci	N	V-156	55.6 JD	1.20 JS	0.22	15.1	1.10	96.6	75.9	

STATION LOCATION:

First two numeric characters are STARS Site Number
Alpha character is treatment where:
- A = Agricultural Tillage
- I = Lime Slurry Injection
- D = Deep Plow
- T = Topsoil
- C = Control
- X = Extra (additional phosphorus)

Last two numeric characters are plot number

SPECIES CODE:

Ag da = Agropyron dasytachyum (Thickspike wheatgrass)
El an = Elymus angustus (Altai wildrye)
Ag el = Agropyron elongatum (Tall wheatgrass)
Ag in = Agropyron intermedium (Intermediate wheatgrass)
Ag cr = Agropyron cristatum (Crested wheatgrass)
Ag de = Agroypron desertorum (Desert wheatgrass)
El ju = Elymus junceus (Russian wildrye)
Ag ri = Agropyron riparium (Streambank wheatgrass)
El ci = Elymus cinereus (Basin wildrye)

SAMPLE CODE:

N = Natural sample
BFS = Blind field standard (NIST SRM)
R = Field replicate sample

DESCRIPTORS:

J = Estimate concentration
U = Not detected at concentration exhibited
GS = GFAA spike result out-of-control window
BP = contaminated preparation blank
D = Duplicate out-of-control window
S = Spike out-of-control window

APPENDIX D8

VEGETATION NAMES

Genus, species and variety	Symbol	Common Name
Melilotus officinalis	Me of	yellow sweet clov.
Medicago sation	Me sa	alfalfa
Elymus canescens	El ca	canadian wild rye
Thalaspi arvense	Th ar	pennycrest
Bromus tectorum	Br te	downy brome
Arena sativa	Av sa	wild oats
Agrostis tenuis	Ag te	bent grass
Lychnis alba	Ly al	white cockle
Chenopodium sp.	Ch sp	goosefoot
Elumus junceus	El ju	russian wild rye
Bromus inermis	Br in	smooth brome
Juncus spp.	Ju spp.	juncus
Sarcobatus vermiculatus	Sa ve	greasewood
Agropyron trichophorum	Ag tri	wheatgrass
Distichlis spicata	Di sp	saltgrass
Agropyron elongatum	Agel	tall wheatgrass
Lotus corniculatus	Loco	birdsfoot trefoil
Agropyron dasystachyum	Ag da	thickspike wheat.
Elymus angustus	Elan	altai wild rye
Deschampsia caespitosa	De ca	tufted hairgrass
Elmus giganteus Volga	El gi	mammoth wild rye
Elymus cinereus	El ci-M	basin wild rye
Elymus cinereus PI	El ci-PI	basin wild rye
Festuca longifolia	Fe lo	hard sheep fescue
Poa compressa common	Poco-C	Canada bluegrass
Agropyron cristatum	Ag cr	crested wheatgrass
Festuca ovina	Fe ov	sheep fescue

BULK DENSITY SAMPLES STARS PHASE III NEUTRON PROBE CALIBRATION		
02/20/90		
SAMPLE INTERVAL	DEPTH (cm)	DENSITY (g/cm3)
21I14	97.5-112.5	1.27
21T13	7.5-22.5	1.59
07I18	97.5-112.5	1.44
21I14	187.5-202.5	1.45
21T13	37.5-52.5	1.27
21D17	187.5-202.5	1.53
07I18	187.5-202.5	1.41
07T13	22.5-37.5	1.76
21C18	67.5-82.5	1.16
02I23	127.5-142.5	1.58
21C18	52.5-67.5	1.30
02T19	67.5-82.5	1.61
07T13	97.5-112.5	1.37
02A22	7.5-22.5	1.64
33T09	22.5-37.5	1.40
33C12	22.5-37.5	1.41
27D16	22.5-37.5	1.13
27X13	37.5-52.5	1.37
27A17	7.5-22.5	0.91 *
27D16	37.5-52.5	1.04
27C14	22.5-37.5	1.29
27C14	37.5-52.5	1.84
27C14	52.5-67.5	1.37
27C14	67.5-82.5	1.10
27X13	22.5-37.5	1.21
33A07	7.5-22.5	1.30
33A07	37.5-52.5	1.05

SAMPLE INTERVAL	DEPTH (cm)	DENSITY (g/cm3)
33A07	97.5-112.5	1.38
33D08	22.5-37.5	1.31
33I10	37.5-52.5	1.11
33I10	172.5-187.5	1.68
33C12	232.5-247.5	1.56
27C14	7.5-22.5	1.13
33A07	82.5-97.5	1.21
33I10	157.5-172.5	1.79
* SUSPECT VALUE		